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SERICULTURE AND DEVELOPMENT

SUMMARY OF BENEFICIARY ASSESSMENT STUDIES 1995

BENEFICIARY ASSESSMENT
OF NATIONAL SERICULTURE PROJECT
INSTITUTE FOR SOCIAL AND ECONOMIC CHANGE
NAGARABHAVI P.O., BANGALORE - 560 072.

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PREFACE

A compilation of the Summaries of the studies undertaken by the BA team at ISEC, during 1995 have been presented here. These study reports cover different aspects of sericulture in the three Southern States viz., Andhra Pradesh, Karnataka and Tamil Nadu. It is hoped that these summaries will enable a more informed participation. Your comments and observations would be welcome.

We wish to thank all my team members for the enormous hard work they have put in, and for their untiring support and cooperation. Our thanks are due to Prof. M.N. Srinivas for being the continuous guiding and inspiring force behind the team's efforts. A project like this would have been almost impossible to operate within the framework of research institution, without the tremendous support, encouragement and guidance of our Director Dr. P.V. Shenoi to whom we owe a special gratitude.

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(Joint Director)

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PRODUCTIVITY IN SERICULTURE
CASE STUDIES OF TUMBADI VILLAGE, TUMKUR DISTRICT AND VARAHALLY VILLAGE, MYSORE DISTRICT

Anand Inbanathan, V.S. Parthasarathy,
T.A. Bhagyalakshmi and H.Y. Gowramma

troduction

hile higher productivity would be a goal for most enterprises, industrial or agricultural, sericulture the levels of productivity achieved are usually a reflection of the socio-conomic situation of sericulturists rather than any srong motivation towards achieving gh productivity as such. Several factors influence productivity in sericulture, including e climatic conditions, water resources, quality of inputs and the infrastructure vailable for production and marketing. Our aim has been to look into the aspects of ocial life which affect productivity, and the factors which provide a positive impetus to roductivity, as well as those which impede productivity. However, we would like to oint out that high productivity in sericulture need not be an absolute goal, and even low productivity has been able to support many families, and provides them with a elihood that is not otherwise easily available ij the places where they live.

bjectives and Methodology

he study considers two Technical Service Centres (TSC), viz., Tumbadi village cluster Koratagere TSC of Tumkur district, and Varahally village in Deanur range of anjangud taluk in Mysore district. The main objectives are:

to highlight the contribution of technology adopted inmulberry cultivation and silkworm rearing in improving productivity;

to understand the role of socio-economic status of sericulturists in productivity and the sociological factors involved in it;

3. to examine the marketing and credit facilities available; and
4. to highlight the role of extension services in improving productivity.

The methodology employed, as in other Beneficiary Assessment studies, includes mixture of qualitative and quantitative methods of research, with a predominance qualitative methods, particularly incorporate in participant observation. Th questionnaires have been used for quantitative data, and check-lists to gath qualitative information. Case studies supplemented information gathered through t above mentioned methods, and these are generally through several convrsatio interviews of the same persons.

The rationale for selecting Varahally in Mysore and Tumbadi in Tumkur are to highlig two facts. One, Tumkur district is a traditional sericulture region, but sericulture w started recently in this particular area, and it has a relatively high productivity. On t other hand, in Varahally, which is also in a traditional region, sericulture is bei practised for many years, but with the rearing of the traditional cross of silkworms. W have tried to look into the factors which were responsible for farmers opting eith progressive measures of sericulture as in Tumkur, and the factors which impede t adoption of high yielding varieties of mulberry and rearing of improved silkworm race as in Varahally.

Findings[1]

1. Farmers adopt a narrow spacing in the mulberry garden between cuttings a plant a larger number of cuttings, to ensure that a sufficiently large number cuttings do sprout — i.e. to act as an insurance against cuttings that fail sprout.

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1 Findings generally refer to both the areas of study unless specifically related to any one of the two places, in which case, the name of the place is indicated.

Growing of green manure crops is not observed in the Tumkur area, mainly because (i) none of the farmers has done so till now, and there is no successful farmer who canset a trend for other farmers to follow (ii) a few farmers also believe that growing green manure crops increases weeds and reduces the supply of nutrients to mulberry plsnts.

Soil testing in both the study areas is rare, becuase (i) farmers themselves do not expect much benefit from such an exercise, and (ii) soil test results are not given immediately to the farmers, and sometimes not given at all.

Irrespective of levels of productivity, a majority of the farmers use only urea as it favours quick vegetative growth of mulberry. A few farmers experience cocoon crop loss, and feel that it si due to the application of complex fertilizer, and think that urea is bette. Since farmers of all levels of productivity generally use a considerable quantity of farm yard manure, the adverse affecs of urea is counteracted.

Farmers always relate crop loss or success with fertilizer application, and randomly change fertilizer type and dosage, without consulting the extension staff. If a neighbour has a good cocoon crop with the use of a particular fertilizer on his garden, and sericulturist immediately changes the fertilizer in his garden too.

High productivity farmers have their own, or very reliable, irrigation facilities with which their gardens can be adequately irrigated and in time. Low productivity farmers in general do not have sufficient water, or their own sources of irrigation, but have to buy water from neighbours. They may also depend on tanks for water for which they have to wait 2-3 days before they coudl have their garden irrigated. Thus, their cost of production is also relatively higher.

6. Silkworm race: Farmers do not want to rear Bivoltine because of the risk of losing crops at final stages of rearing. There is also the problem of lower prices than CB even if they succeed with their BV crops.

7. The majority of farmers go to LSPs to get their disease free layings, and many of them do not have any confidence in government grainages. One of the main reasons is their belief that government grainages do not provide disease free layings even if they are so called.

8. There appears to be some relation between the disinfection practices of rearers, the size of rearing space, and the productivity levels achieved by the rearers. High productivity rearers generally have more rearing space, with better ventilation, and they ensure proper disinfection of the rearing place. Lower productivity farmers have poorly ventialted rearing spaces, and do not carry out disinfection to the required level since their congested living place does not permit proper disinfection.

   Low productivity farmers do not see the need to disinfect the rearing place except when there is continuous crop failure, the high productivity farmers carry out proper disinfection regularly. Use of bed disinfectants is relatively low among all levels of productivity. Farmers are under the impression that frequent use of disinfectants harms the silkworms. And, if the rearing is carried out under hygienic conditions there is no need for any bed disinfectants.

9. The majority of low productive farmers do not possess sufficient trays, and borrow them from others.

10. Varahally sericulturists cultivate the local variety of mulberry, and cannot uproot them because there is insufficient irrigation to grow the improved varieties. Sericuture appears to be the most suitable means of earning a livelihood, considering the local conditions of poor irrigation etc. Other crops require some irrigation for their cultivation. Farmers are, therefore, planning to expand their mulberry gardens with the local variety.

Most of the sericulturists' houses in Varahally are small and congested, and there is not enough space to rear the improved cross or bivoltine silkworms.

Farmers believe that formalin supplied fromthe TSC in Tumbadi is adulterated. They, therefore, buy their requirements of formalin from Ramanagaram.

In many cases, particularly among the low productivity farmers, thee is a distinct tendency to brush more dfls than their mulberry gardens can support. They have to buy leaves from others to complete the rearing.The quality of leaves cannot be quanranteed, and crop failures may reult from using poor quality leaves. The general belief is that if they brush more dlfs, then evenwith a relatively low productivity they will still get some cocoons to sell. Hence, the management of mulberry cultivation and silkworm rearing is carried out in ways that tend to increase the possibility of crop failures which result in reverting to a longer number of dfls being brushed....and so on, a continuous cycle of poor productivity and crop losses.

Risk taking ability is limited among these farmers (particularly in Varahally). They live too close to marginal level of existence to experiment with new varieties of mulberry or races of silkworms. The old tried methods of rearing are also considered suitable since they provide at least a minimum produce to support their families.

Rearers in Tumkur take their cocoons to the Ramanagaram cocoon market, since the Tumkur cocoon market is not well developed. The Tumkur market suffers from the problems of having a small number of reeling unitsin the area, and therefore a limited demand for the cocoons. Prices for the cocoons tend to be lower than in Ramanagaram. Rearers sell their cocoons in the Tumkur market only if the quantity of cocoons they have for sale is less than 20 kgs per dfls.

Even though the productivity level in Varahally is relatively low, the immediately neighbouring village of Devanur has a few productivity farmers. For instance, Lokesh, whom we have described in a later chapter, is one such farmers. The

important factors which contribute to his success are: (i) irrigation facilities, (i
separate rearing house, (iii) the training he received in silkworm rearing.

The recommendations that follow from this study are related to the levels of productivit
that we observed in the two districts. It is possible to list the factors that are responsibl
for poor productivity and those that resulted in higher levels of productivity. These ar
given below.

Factors responsible for poor/low productivity

1. Probably the most crucial factor leading to poor productivity is the lack o
water/irrigation.
2. Congested houses, poor ventilation, and less hygiene in the rearing places are
usually related to low productivity.
3. Improper rearing practices, as well as attitudes towards rearing (calling it a
matter of luck when they succeed or fail) are contributory factors in the poor
productivity.
4. Use of inorganic fertilizer without soil testing, and also without careful
considertion of which fertilizer is suitable for the particular garden, and also
using chemical fertilizers without sufficient irrigation.

RECOMMENDATIONS

Our recommendations to improve the levels of productivity also follow from observing
some of the practices of the more successful and high productive sericulturists.

1. Irrigation is the most important factors to improve the productivity of the
sericulturists. While it is not always possible for sericulturist to drill borewells
in their own land, a schemd which may be considered is to organize several
sericulturists living within a paritcular area to have one borewell for their joint

use. The cost of drilling may partly be met through a contribution from the farmers, and be partly met through loans, or grants from the government or other agencies.

Soil testing should be regularly done, and soil testing units should be established ina nearby area, which woud also need to produce the resultsin a short time. Farmers may be encouraged to get their soil tested by providing quicker results. Further, the results of the tests should be explained to the farmers in a form that they understand, and also followed by a detailed description of the fertilizers to be used and in the proper quantities.

Some of the problems could be solved with a moe focused extension service. For instance, the use of urea at all times would result in a deterioration of the soil over a period of time. Extension officials should impress on the farmers the negative long term impact of indiscriminately using any fertilizer that they fancy, and that the farmers should not consider only the short-term benefits but also the long-term effects on their land. However, the confidence that the farmers have in extension staff would be increased if the extension staff also provides information which the farmers immediately need.

Latest sericulture technology and techniques rarely reach the farmers, in both Varahally and Tumbadi. Progressively and relatively large farmers may have access to the latest techniques of cultivation and rearing, and extension officials ery often concentrate on these farmers. However, the major problem is to increase the productivity of poor farmers. Extension oficials would need to spend more time and effort in tailoring their advice and recommendations to suit each farmer, rather than give blanket instruction for the whole group.

Sericulturists themselves suggest that a monthly meeting of extension officials and local farmers will help in identifying problems and finding solutions.

Attitudes of the farmers are at times the stumbling block preventing a higher productivity. They will have to be educated and convinced that "luck" plays a

less important role in rearing than specific and simple procedures of hygiene, proper disinfection, etc.

7. Sericulture is an activity that takes in various considerations within its ambit. Successful management needs knowledge in several area, and technical information could be better provided if farmers are encouraged to attend a training programme of some kind.

8. With the confidence in government grainages rather low in these two areas, measures may be taken to improve the functioning of the grainages, to encourage farmers to buy eggs from them.

9. If the reeling sector in Tumkur remains weak, the farmers will continue to sell their cocoons in Ramanagaram. Only with a stronger and more vibrant reeling sector in Tumkur will the cocoon market serve the sericulture development to a higher degree, and it will also encourage the farmers to sell cocoons in this market itself, rather than in Ramanagaram.

BIVOLTINE SEED COCOONS PRODUCTION PROGRAMME IN ANDHRA PRADESH

A Study of Four Clusters in Bivoltine in Seed Area, Anantapur District

K.V. Govinda Raju and Sundarvalli

1.1 General:

Andhra Pradesh has been making giant strides in sericulture especially during the last five years under the National Sericulture Project. Both in terms of the area under mulberry and the number of sericulturists rearing Cross-Breed (CB) silk worms, there has been a substantial increase. This has created increase in the demand for CB silkworm seeds. The Department of Sericulture (DOS), Andhra Pradesh (AP) has initiated a number of measures to make the State self sufficient in the production of quality seed to meet the demand. At present, the silkworm seed multiplication in the state is being carried out in three tier system of multiplication at P3, P2 and P1 levels. The state is maintaining seed farms for multiplication at P3, P2 levels, whereas P1 multiplication is being done through farmers participation, in the notified seed areas.

1.2 Objectives:

Gorantla and Madakasira Taluks in Anantapur district, have been identified by the DOS, for P1 seed cocoon production (Gorantla for Local Race and Madakasira for Bivoltine). The Action plan of the DOS has many incentives to encourage farmers to take up BV race silkworm rearing in the notified seed area. Some of these measures are:

* improving the infrastructure for mulberry cultivation and silkworm rearing,
* provision for providing inputs, extension services,

* crop insurance,
* market facility with price support and
* bonus amount for the rejected cocoons.

Sericulturists' response to the Bivoltine Seed Cocoon Programme is poor and majority of them prefer to rear cross breed layings (CB). This preference of sericulturists is mainly because they are assured of harvesting a minimum quantity of cocoons from CB rearings.

Specifically, this study will address the following two questions, viz: (1) what has been the response of the sericulturists to the various incentives offered for the promotion of BV seed cocoon production and (2) What are the problems and bottlenecks at the field level?

The study will cover the farmers in the BV seed area of Anantapur District with a focus on the support system provided by the DOS; viz: services available, perceptions of sericulturists in the seed area villages, needs as perceived by them and measures required for ensuring better participation of sericulturists in the Seed cocoon production programme.

1.3 Study Coverage:

The Seed Cocoon production programme intends to cover villages in the five mandals namely Madakasira, Rolla, Amarapuram, Gudibanda and Agali. The area covers 273 villages and 5600 sericulturists, having 3671 acres of land under mulberry. The programme is intended to cover 92 villages and about 275 sericulturists. Besides, the programme also covers, identified sericulturists in the villages of Hindupur Taluk.

For the purpose of this study, we have selected four clusters, one each from Madakasira, Rolla, Amarapuram Mandals (from Madakasira seed area) and one cluster from Hindupur taluk. The study covers 170 sericulturists from the selected twenty villages and covered the period from April to December 1995. About 49 sericulturists have taken to BV rearing. These forty nine sericulturists are not exclusively BV rearers. In addition to BV rearing, they have taken CB rearings also. The reasons for non-participation, the rearing details of the 49 participants in the BV programme, incentives offered, performance, perceptions of rearers on improved practices, problems faced by extension staff, cost and returns have been covered in the report.

1.4 Methodology:

Data have been collected on silkworm rearing activity through participant observation. Besides we have carried out conversational interviews with sericulturists who belong to different socio-economic categories, to collect data on rearers' problems and responses to the several incentives provided by the DOS such as input supply, extension services, crop insurance, marketing support etc.

2 The Programme:

2.1 The norms for selecting the sericulturist as "seed rearer" are those who are having: (a) Irrigated mulberry garden, (b) Infrastructure like sufficient number of rearing appliances and separate rearing shed and (c) Good track record of CB rearing.

The programme consists of improving rearing infrastructure (new varieties of mulberry, improved irrigation method, construction of rearing shed...), supply

of sericulture inputs at subsidized rates, extension services, market support, and insurance coverage for crop loss.

The programme is implemented through the extension staff, and package of incentives are offered to encourage more number of sericulturists to take up BV rearing. Following are the list of incentives offered to the rearers for taking up BV rearings:

(1) Farmers who are willing to opt for 2' x 2' plantation, are given 50 per cent subsidy for installing drip irrigation, (2) Free supply of disinfectants for pre-disinfection before taking BV rearing, (3) Credit assistance for construction of sheds. The cost of construction of shed is estimated at Rs.14,000/-. Towards this, a sum of Rs.7000/- is provided as credit and the farmer has to provide the remaining amount of Rs.7,000/- from his own source, (4) The Department was charging a sum of Rs.120/- per 100 BV layings from April 1995 to the middle of August 1995. Since, August 1995, layings are supplied at Rs.60/- per 100 dfls and items like paraffin paper, bleaching powder, RKO powder equivalent to Rs.60/- are given, (5)Insurance coverage against crop loss: Under the BV seed cocoon production programme the crop insurance is compulsory and cover all participants. The premium rate for 100 BV layings is Rs 128/- which is 8 per cent of the expected value at the VI stage. The indemnity of the insurance company is 90% of the crop value. The Department pays the premium amount to the Insurance company on behalf of the participant. The premium amount calculated on the expected quantity of DFLs to be brushed during the specified period and paid in advance by the Department. Details of the crop progress of all the participants have to be furnished to the insurance company. In case of crop failure, details have to be verified by the

field staff and the details of the cause and extent of loss have to be informed to the insurance company within one week and (6) Market support: There is a good network of market support offered by the DOS for the BV rearers, both in terms of the price and assurance of purchase: (a) The seed committee fixes the seed cocoon price in advance and cocoons fit for seed are purchased at this price. The price is fixed on the number of cocoons per one kilogram of cocoons (700 cocoons have been taken as equivalent to one kg by weight). If the cocoons for one kilogram of cocoons, are less than 700 such lots are given a higher price. At the same time, if the number exceeds seven hundred, such lots are given a seed price at discounted rate, (b) If the cocoons are in excess of the seed requirements, the rearer is paid Rs.100/- per 1000 cocoons, in addition to the price he obtains in the market by selling such cocoons for reeling,and (c) The cocoons found unfit for seed purpose are given a bonus of Rs 30 /kg.

3. Study area and the Sericulture Activity:

The study has covered 170 sericulturists in twenty villages. Of this, 64 households are marginal farmers, 56 households are small, 44 households are medium and 6 belong to large farmer category. In terms of caste group, 52 percent of households belong to Vokkaligas, followed by Reddys(18 percent) and Kurubas(12 percent).

3.1 Mulberry Cultivation:

The principal crops grown are groundnut and ragi under dry lands. Paddy is grown under tank irrigation. Some farmers also cultivate sunflower, cotton, betel leaves and coconut.

Mulberry is cultivated under irrigated conditions. The main source of irrigation is open wells and borewells. In some of the villages, wells have dried up and the borewells rigged have failed as the water table has gone down. As such the cultivation of mulberry is under partial irrigated condition in these villages. Farmers have opted to grow mulberry and silkworm rearing has become a major occupation of farmers.

The average mulberry area is 0.90 acres per household. M5 is the common mulberry variety grown by the households. There are some households who are also having local variety. Plantation method is row system with 1' X 1/2' spacing. There are six households who have 2' X 2' spacing. Generally plantation with 2' X 2' spacing is not encouraged by sericulturists, as it leads to less plant population which result in lower quantity of leaf production. About 53 percent of households are engaged in sericulture activity for less than 10 years, where as the remaining 47 percent of households are having an experience of more than 10 years.

In general the sericulturists are aware that the BV cocoons are used for seed purpose. They are aware of the incentives offered including insurance scheme, market support and other incentives offered for taking up BV rearing.

A target of 2000 BV dfls have to be distributed per month among the sericulturists for rearing. The extension staff do not have any restriction in the number of villages to be covered for achieving this target. Sericulturists are motivated that the BV rearing is covered with insurance for crop loss and an amount of Rs 1440/100 dfls will be paid, apart from other incentives like credit

assistance for construction of rearing sheds and installing drip irrigation with 50 per cent cost as subsidy.

3.2 Inputs used:

Farmers apply 10-12 cartloads of Farm Yard Manure (FYM) per acre of mulberry per annum. Some farmers who are not having adequate quantity of FYM, purchase and apply. The cost of FYM ranges from Rs 80-100 per cartload. In addition, chemical fertilizers like Super phosphate, Calcium Ammonium Nitrate (CAN), Di-Ammonium Phosphate (DAP) are applied. Sericulturists choose any of these fertilizers and apply one bag (50 kgs) each for every crop. The quantity of fertilizer applied is not in relation to the mulberry area.

3.3 Inter cultivation practices:

After each crop, farmers attend to activities like weeding, application of fertilisers etc. Mulberry gardens are irrigated once in a week. During the rainy season, depending on the requirement irrigation is provided.

3.4 Rearing Infrastructure

Out of 170 sericulturists, 35 percent of sericulturists have separate shed for rearing. Fifteen households (9%) have separate room for rearing, whereas the majority of the sericulturists (56%) do not possess a separate place for rearing, and the rearing activity is done in the available place which is also used for dwelling.

Sericulturists own equipments like stands, trays, chopping knife and board, uzi nets, sprayers etc. Mountages are hired by almost all the households. There

are two to three households in each village who own mountages for their use as well hire out to others, and the charges are Rs.5/- per mountage per crop. During the months of intensive sericulture activity (Aug-Oct), there is shortage of mountages, and sericulturists have to hire mountages from neighbouring villages.

3.5 Silk worm rearing:

3.5.1 BV P1 Layings

The source of P1 layings is from Madakasira P1 Government Grainage. The cost of P1 layings per 100 was Rs.120/-. Since August 95, the dfls are supplied 50 per cent cost as subsidy. Sericulture inputs like bleaching powder, formalin, paraffin paper worth Rs.60/- are supplied to the participants. Most of the sericulturists take two to three rearings of CB and one or two rearings of BV during a year.

3.5.2 Disinfection:

Before obtaining the layings the rearing place and equipments are disinfected. Disinfection of rearing place is done with bleaching powder and formalin. Before brushing and after the harvest of the crop, the trays are washed with cowdung and formalin solution. Although the extension staff do advise the sericulturists not to use cowdung it is hardly adhered to.

Sericulturists buy the sericulture inputs like bleaching powder, formalin from the SERIFED outlet at Madakasira and are using. The cost of bleaching powder per kg varies from Rs 11 to 15. The cost of one litre of formalin is Rs 20 and RKO powder costs Rs 15 per kg. The cost of lime powder ranges from Rs 2 to 3 per kg. When the formalin solution is not supplied by the SERIFED,

sericulturists purchase from private traders. They complain that the solution obtained from these sources is diluted and not effective.

The common diseases that affect the BV crop are grasserie, flacherie and uzi menace, grasserie being more common. Majority of the sericulturists dust lime powder on the worms daily. There are few farmers who are using RKO powder. Others although aware of RKO powder are not using as they feel it is not necessary. The extension staff attribute the occurrence of grasserie to the feeding of bad quality leaf. Sericulturists feel that inspite of all the care taken, the crop is lost. All the BV rearers use uzi nets (some of them in use two folds) to prevent the uzi attack. They are not able to prevent the uzi attack affecting the rearings resulting in uzi affected cocoons and are not purchased for seed.

Brushing of dfls is done in one tray irrespective of the quantity. By the stage the worms reach the spinning stage the number of trays will be 35 to 40 per 100 dfls. Farmers often complain of improper hatching and loss of worms and attribute this to the quality of layings supplied.

Worms are fed five times upto the third moult and four feeds are given after fourth moult. Sericulturists feel that in case of BV, worms have to be given more space in trays which require additional trays and wooden stand require which occupy more space. This also implies use of additional labour.

3.5.3 Marketing:

There is a Government market at Madakasira for purchase of BV seed cocoons. The price is fixed by the Seed Committee. The price of BV seed

cocoons was Rs 210 from April to June, Rs 190/kg from July to October and Rs 200/kg since October 95. This price is applicable for 700 nos. per kg. As the number of cocoons increases the price decreases and vice-versa. Farmers feel that the market transaction of CB cocoons is easy and receive cash payment immediately. Meltage cocoons separated from the cocoon lot have to be sold at Hindupur market. Participants feel they have to visit Madakasira and Hindupur (two different markets) for marketing of cocoons.

4. Response to the Programme

4.1 Reasons for participating in the BV programme:

Despite many farmers not in favour of BV rearings, there are 49 who have participated in the programme. The participation of sericulturists from the different landholding categories and by number of crops are: **(a) One Crop : Marginal-5; Small - 15; Medium - 9. (b) Two Crops: Small - 15; Medium-10. (c) Three Crops: Medium - 2; Large - 2; and (d) Four crops: Large - 1.**

The data indicates that as many as 59 per cent of the rearers have taken one crop, 31 per cent have taken two crops, 8 percent have taken three crops and the remaining one sericulturist has taken four crops. The sericulturist who has taken four crops belong to the large farmer category. Among those who have taken three crops, two each belong to the medium and large category. Out of the 75 rearings covered, 45 rearings are accounted by medium and large farmers. This constitutes 61 per cent of the total rearings. The remaining 39 percent is accounted by small and marginal farmers.

Among the participants, there emerges two groups viz., those who participate only once whereas the other group of sericulturists, who participate more than once.

Out of 29, who participate in one rearing, 20 sericulturists (69%) belong to marginal and small category of farmers.

The perceptions expressed by the participants with regard to BV rearing and reasons for (multiple responses from twenty) taking rearings more than once are:(1) Great risk is involved (susceptible to diseases, requires scrupulous adoption of preventive and control measures) - 60 percent, (2) Requires nutritious leaf (good crop husbandry management)-45 percent, (3) Requires more quantum of leaf (DFLs reared is less)-55 percent and (4) Requires more care than CB, but fetches more returns-85 percent.

The most important aspect that the rearer considers in favour of BV rearing is the economic returns it may fetch in case of successful crops. Then follows the necessary scrupulous adoption of preventive and control measures(60%) and 45% respondents opine that it requires good crop husbandry management (garden management).

4.2 Reasons for non-participation:

Of the 170 sericulturists, from the 20 villages, 49 have participated in the programme and the rest 121 have not responded inspite of several incentives offered for taking up BV rearing. In order to find out the reasons for non-participation, we have covered 76 sericulturists through conversational

interviews. Of these 48 are marginal and small farmers, 22 belong to medium category and 6 are large farmers.

The reasons identified by the respondents with respect to BV rearing are as below; (1)The quantum of mulberry leaf required is high, (2) A great risk is involved in rearing BV in view of the fact that it is more easily susceptible to diseases as compared to CB, (3) Rearings can be done only during favourable months, thereby the number of crops would be limited, (4) Requires scrupulous adoption of rearing practices, (5) Most important aspect is the assured returns in case of CB rearing, and (6) The crop insurance coverage is not adequate even to cover the cost incurred in BV rearing.

Although farmers are aware of incentives available, they do not want to rear BV as it involves risk. To avail the loans for constructing shed and install drip irrigation, farmers have to give an undertaking that they will rear BV continuously for three years. When they have attempted one or two crops, which has resulted in crop loss, they are not willing to give such an undertaking.

Some of the sericulturists who have tried one or two rearings of BV and wherever there was an instance of crop failure has led them to get back to CB rearing.

Farmers uniformly agree that BV is more sensitive and should be reared in a separate rearing shed, requires more matured and more quantum of leaf and more labour. Sericulturists feel that the price of BV seed cocoons fetch

Rs.80-100 per kg more than CB price and it is profitable to rear BV, but fear losing the crop.

5. Performance:

5.1 Yield level and category of farmers:

The main considerations of the sericulturists for participating in the BV seed cocoon production programme mainly depends on the level of performance of BV race, yield obtained, cost to be incurred and the expected returns.

Of the total 49 participants, 5 are marginal, 20 are small, 21 are medium and 3 are large farmers. The number of dfls reared per rearing is highest for the large farmers (289) the least for marginal farmers (101 dfls). The average yield obtained by large farmers is 33 kgs/100 dfls, whereas it is lowest (18.73 kgs/100 dfls) in the case of marginal farmers. Sericulturists from the medium and small farmers category, obtain 21 Kgs. and 19 Kgs. of cocoon per 100 dfls respectively.

If we take the medium and large farmers together,, the average yield will be 24 kgs/100 dfls, similarly marginal and small group farmers' average yield is 19 kgs/100 dfls. Participants from small and marginal group (25 in number) contribute 26 % of total cocoon production whereas the other 74 % of total production is coming from the medium and large farmers group. Sericulturists from the marginal and small farmers category restrict their participation to one rearing only whereas the medium and large farmers category opt for more than one rearing of BV.

Participants (20.4 percent) who have conducted rearings in separate rearing house have obtained a highest average yield of 27.17 kgs per 100 dfls. 18 percent of participants have conducted rearings in separate rooms, obtained an average yield of 23.50 kgs per 100 dfls. The remaining(61.2 percent) participants have conducted the rearings in a place which is part of the dwelling house. The average yield for this group is 20.10 kgs per 100 dfls, which is lowest, compared to the other two groups. This average is also less than the group average of 22.65 kgs per 100 dfls.

5.2 Participants by Yield Level:

The average yield obtained by the participants who have taken one crop is 19.72 kgs per 100 dfls, two crops is 21.22 kgs per 100 dfls, three crops is 25.98 kgs per 100 dfls and 36.89 kgs per 100 dfls in case of sericulturist who has taken four crops. The average yield obtained by the all 49 participants is 22.65 kgs per 100 dfls. We have grouped the participants into two categories viz, those who fall "below" and "above" the average yield.

The data shows that 63 per cent of participants fall **"below"** the overall average of 22.65 kgs/100 dfls. The average yield obtained by this group is 16.20 kgs/100 dfls, whereas the average yield for the other group of participants (who are above the average) is 32.15 kgs/100 dfls. The `below average' group, rear as much as 60% of dfls, and contribute 42.62 % of total production at a low yield rate(16.20 kgs/100 dfls). This suggests that these low yield group of participants who are from small and marginal groups, require follow up and extension support in a more intensified manner.

During our field visits, participants from `above average' group were found to be self-confident, assertive about their sericulture experience etc. They were also telling that they have taken to BV rearing as a challenge and they own the required infrastructure on which they have already invested and they expect higher returns in relation to their investment.

Sericulturists who fall `below average' group who are not prepared, with inadequate infrastructure have entered into the programme resulting in poor performance. Most of them come from marginal and small category of farmers. Of the 49 BV rearers, 30 (61 %) rear in a part of the dwelling house. The problems faced by this group of participants are : (1) The application of required inputs is not met due to high cost and non-availability of chemical fertilisers and FYM. Due to this leaf quality suffers resulting in poor yields, (2) Due to the lure of high price of BV, the scale of operation is not strictly according to leaf availability. More number of dfls are reared ending up in shortage of leaf which necessitates purchasing leaf at the last stage of rearing resulting in poor performance, (3) The same rearing practices as in case of CB are adopted although extension staff ask them to adopt improved practices like wider spacing, application of adequate inputs, use of disinfectants etc, (4) Disinfectants like RKO is not used by majority of sericulturists.

6 Perceptions regarding improved practices:

6.1 Mulberry cultivation:

As regards mulberry cultivation, sericulturists believe that feeding worms with M5 variety alone would lead to grasserie at the spinning stage.

6.1.1 Spacing:

A few progressive sericulturists have planted M5 with 2`X2` spacing under pit system. These sericulturists take two to three crops of BV in a year as they feel that the leaf from such garden is highly suitable for BV.

However, two sericulturists who had adopted pit system with 2' X 2' spacing on the advice of the extension staff found that such wider spacing leads to more weeds and thereby necessitating more labour to clear it. Both have reverted back to row system.

6.1.2 Use of inputs:

The extension staff advise sericulturists to apply 20 cartloads of FYM per year per acre. Sericulturists are not in a position to do so partly due to non-availability and high cost of FYM. In addition they have to apply FYM to other crops like ragi, paddy etc. They also complain that the cost of chemical fertilisers is high and they are not able to use 300:120:120 of NPK which is advocated by the extension staff. The fear of BV crop loss in some cases has led to inadequate application of chemical fertilisers to the mulberry garden.

6.2 Silkworm rearing:

6.2.1 BV race

By and large sericulturists opine that BV requires more effort and caution regarding control of diseases if they have to get a good yield. They also believe that BV rearing has to be done in a separate rearing house only and not in dwelling house. They also perceive that BV race is not as hardy a race as CB.

6.2.2 Prevention and control of diseases:

The common diseases which are found to affect the crop are grasserie and flacherie. In most of the cases, grasserie is found after fourth moult (fifth day). In some cases, worms shrink when left on the mountages(spinning stage). Sericulturists feel that extension staff are not suggesting measures to prevent or control these diseases other than asking to use RKO powder and lime powder.

Another problem is high uzi infestation. During the monsoon months upto early October, because of the greenery around, uzi infestation is high. Even though all BV rearers are found to use uzi nets(some even use in two folds), part of the crop is affected with uzi. Such uzi affected cocoons are not purchased for seed purpose. They have to sell such cocoons in Hindupur market for reeling. Farmers expect some solution to control the uzi menace. Participants feel they have to visit two different markets for marketing the output. In some cases, the sericulturists were asked to restrict the number of dfls to be reared according to the mulberry leaf availability but it was not followed and they had to purchase leaf to meet the shortage this resulted in crop loss (grasserie). These sericulturists attribute the loss to the quality of the leaf purchased.

6.2.3 Rearing Infrastructure:

Sometimes they experience shortage of trays and they borrow from the other fellow sericulturists. These trays are not smeared with disinfectants before putting into use. As far as the investment on mountages is considered, sericulturists take it on hire as they are used at the most for one week per rearing. Their contention is that when it is available on hire, why should they unnecessarily invest on it?

6.2.4 Insurance coverage :

Small farmers with meagre resource base cannot withstand the crop losses. The compensation for the crop loss under the insurance scheme is Rs 1440 /100 dfls. Farmers feel that in case of successful BV crop of 35 kgs/100 dfls, they can get a gross return of Rs 6650 which is hardly comparable to the insurance amount of Rs 1440. They pose the question as to why they should grow BV knowing fully well that the risk is higher. Although the existing BV seed cocoons price itself is an incentive, due to the low yields and high melt percentage, farmers feel that the price needs to be increased from Rs 200 to Rs.250-260 per kg.

7.Problems faced by the extension staff:

The approach of the Department is with the main focus on sericulturists' consistent performance of CB rearing and extension support through which the intended targets regarding BV seed production was to be achieved.

The analysis of data shows that only about 60 % of participants did satisfy the specified criteria viz., improved variety of mulberry, separate rearing house, adequate equipments etc. However, the number of participants who could satisfy all the criteria taken together still works out to be less who could have been considered for the programme.

As regards the credit scheme for improving the infrastructure (rearing shed and drip irrigation), farmers have to give an undertaking that they will rear BV continuously for three years. When they have attempted one or two crops, which has resulted in failure, they would not like to execute such a deed, rather prefer to rear CB.

The content of the extension messages for BV rearing were not different from those of CB rearing practices, except that it required a high level of skill in adjusting the rearing environment, spacing, use of disinfectants etc. Majority of sericulturists felt that their experience in CB rearing is sufficient for taking up rearing BV.

The extension staff have to persuade sericulturists who are willing and meet the requirements to be included under the programme. The process resulted (a) in covering a large number of villages widely dispersed and (b) there was not enough follow up to ensure adoption by the limited subset of participants, who are scattered.

Consequently, the failure cases could not be followed up and also the success stories could not be used for motivating others. They perceive the impact especially in terms of improved technology diffusion appears to be somewhat discouraging.

One of the features in the extension activities was the absence of follow up action and feedback system. For example, even after a successful crop, the functionaries were not able to motivate farmers in the same village for next rearing. This is because alongside a success case, there were some failure cases as well. There was no follow up visits to identify the reasons for such failures. However, in some cases, sericulturists were not convinced. Unsuccessful sericulturists considered the role of extension staff as not being helpful.

In the production process participants fall into two categories:

1. The first being aware of techniques but not practiced and
2. The other not aware, or the inadequacy of present knowledge and even known practices not being effectively practiced.

All these points to the role of extension, as the success stories support the play of the extension coupled with farmers preparedness and the level of adaptability to reach the high rate of success in the programme.

At the same time there are some other resourceful sericulturists who have faced some problems. However, they have managed to overcome such problems with their resources and skill.

When the extension staff meets the sericulturists, they have to face many questions. These questions cover the areas like sensitivity of BV race, additional infrastructure required, more quantum of mulberry leaf and labour. Besides, the sericulturists always compare the expected returns from CB with BV rearing.

Operationally, since BV rearing is spread out in a large number of villages in a scattered way, the field staff encounter problems in visiting every BV household frequently. The demonstration effect of an instance of crop loss of one farmer on others also operates against the field staff. The delayed payment of the insurance amount also had its negative impact on other rearers. The dfls are given on credit in most of the cases and in the instance of crop failure, extension staff find it a problem to recover the cost of dfls from the participant.

There was no organised system for interaction among the participants to sort out problems and for exchange of views and experiences. The successful sericulturists are not brought in contact with others to replicate their experience.

8.Cost and Returns:

8.1 Cost of production of seed cocoons - Methods used for computing:

In the present study, we have not estimated the cost of establishing mulberry garden but includes the cost incurred on maintenance of garden only. The cost of production of seed cocoons estimated, include (1) maintenance of mulberry garden,and costs incurred on silkworm rearing (layings, labour, disinfectants...)

While estimating the cost, we have not included rent or rental value of land, interest on fixed working capital,depreciation cost on equipments etc,.

All items of inputs (both owned and purchased) have been valued at the prevailing market price. The prevailing wage rates, for men and women have been considered for evaluating the labour cost. The own labour (family labour) component has been valued at the prevailing wage rates, for men and women separately. The value of main production (seed cocoons) is valued at the price fixed for one Kg of seed cocoons. Details collected from seed rearers on garden maintenance, rearings covering the period from April-December 1995 have been used for estimating the cost and returns.

8.2 Cost and net return per kg. of cocoon :

The gross cost per Kg of seed cocoon production is Rs.147.96. The bulk of the gross cost is shared by labour cost on silkworm rearing (75.92%), mulberry leaf (16.2%). At the rate of Rs 200 per kg of seed cocoon, the average net

return realised by the participant is RS 52.64 per kilogram of seed cocoon produced.

In the seed cocoon production activity, the component of labour force is mainly from family members. The imputed value of family labour which forms 54.89%. The proportion of family labour cost to the total labour cost is about 68.6%. **If we exclude the imputed value of family labour, the cost of production per Kg works out to Rs.76.75. The rearer gets a net return of Rs.123.25 for one Kg of seed cocoon production.**

8.3 Cost and net return per 100 dfls:

The cost of rearing 100 dfls works out to Rs.3361.21, and the average yield of cocoon production is 22.65 kgs. At the present rate of Rs.200/- per kg, the rearer realises a net return of Rs.1164.79. When the imputed value of family labour is excluded from the gross cost, the net return works out to Rs.3009.54.

9.Returns from BV vis-a-vis CB rearings:

The details regarding mulberry cultivation and rearing of CB silkworms from 25 sericulturists from the study area(April-December 1995) have been collected for working out costs and returns. The methodology described in case of BV rearing is adopted for evaluating the economics in case of CB rearing also. For evaluating the gross returns, the average market price(April- December 1995) prevailed at the Government Cocoon Market, Hindupur has been considered.

9.1 Cost and returns per kg. of Cross Breed cocoon :

The gross cost of production of one kilogram of cross breed cocoons works out to Rs. 75.18. The gross cost/ gross returns ratio is as high as 0.72. The bulk of the gross cost is shared by labour cost of silkworm rearing (42.6 %), mulberry leaf (26.8 %). The average yield of CB cocoons per 100 dfls is 33.80 kgs. The gross return works out to Rs 104.25(average price is Rs 104.25 per kg). The net return realised per kilogram works out to Rs.29.07. The above analysis includes the imputed value of family labour which forms 36.70% of total labour cost. The proportion of family labour cost to the total labour cost is about 56.59 %. **If we exclude the imputed value of family labour, the cost of production per Kg works out to Rs. 51.39. The rearer gets a net return of Rs. 52.86 for one Kg of CB cocoon production.**

9.2 Cost and Returns per 100 dfls (CB)

The cost of rearing 100 dfls including the imputed value of family labour works out to Rs.2541.60. On excluding the imputed value of family labour the gross cost works out to Rs.1736.76. The labour cost (for both mulberry cultivation and silkworm rearing) forms about 64.8 per cent and the imputed value of family labour share is about 56.6 per cent of total labour cost. As in the case of BV rearing in the CB rearing activity also, the involvement of family labour is considerably more.

The average yield of cocoon production is 33.80 kgs. At the average price of Rs.104.25/- per kg for CB cocoons (Govt. Cocoon Market, Hindupur), the rearer realises a net return of Rs. 982.05. **When we exclude the imputed value of family labour from gross cost, and then the net return, works out to Rs.1786.89.**

Sericulturists, compare the rearing of BV and CB rearings and often express that the net return obtained from CB rearings is more as compared to BV rearings.

The net return (with the inclusion of imputed value of family labour) in rearing 100 dfls of BV is Rs.1164.79, as against Rs.982.05 realised through CB rearing. The gain in net return is Rs.182.74. However, the difference in the net return obtained will be Rs.1212.65 in rearing 100 dfls of BV over CB (on excluding the imputed value of family labour). It should be mentioned here, the average yield per 100 dfls, in case of BV is 22.65 kgs, which is less than the average yield of 33.80 kgs per 100 dfls obtained from CB rearings. But the price of BV is fixed well in advance (Rs.200/- per kg during the study period), whereas the rate of CB cocoons, is on the basis of open auction subjected to variation.

The high price offered for BV, should motivate the sericulturists, to take up BV rearings. The success of BV crop, can be ensured (a minimum of 22.65 kgs per 100 dfls), provided there is some desired change in the rearing infrastructure (separate rearing place, owning trays and mountages) and adoption of improved practices as advocated by the DOS.

10.SUGGESTIONS

1. The selection of farmers, who satisfy the norms prescribed should be strictly followed. The `target based' programme needs revision.

2. Smaller area (villages) should be identified to be assisted with adequate extension staff and TSC. In the villages of Rolla and Amarapuram mandals, there are already potential farmers who may be initiated to take up seed cocoon production. Separate TSCs should be formed which should act as nodal centres for "Information Exchange". This facilitates extension coverage and allows to take up problem solving strategies along with timely supply of inputs, credit etc.

3. Incentives offered are not attracting the sericulturists to take BV rearing. Potential farmers who can take up the activity are not coming forward, as they cannot bear risk. Sericulturists who are rearing CB crop should be motivated to convert the mulberry to improved varieties, along with improving irrigation facilities (Drip irrigation). Cost for such improvements needs assistance to offset the loss of income from rearing during the gestation period. The credit assistance should also cover this amount. New and potential farmers should be identified and given the credit assistance. This assures utilisation of incentives offered for creating the rearing infrastructure required to become potential BV seed rearers.

4. Most of the rearers at present are doing rearing in conditions which are not suitable for BV rearing. Farmers cite this as reasons for not taking BV. Exchange of trays is in practice. The provision of credit for construction of rearing shed (separate with locally available material) should be provided. Out of the total amount of Rs.14,000/- for construction of rearing shed, the farmer has to contribute Rs.7,000/- from own source. Beneficiaries feel that they cannot afford this amount. Therefore the entire amount has to be treated as "credit".

5. Equipments like trays, mountages should be distributed initially to all identified rearers.
6. Insurance coverage for crop loss is necessary. The amount of compensation is far below the cost incurred. There is a need for enhancing the same.
7. Identified sericulturists, whould be given training specific to BV rearing. This should be organised at the village level.
8. For credit recovery, market tie up can be arranged as the seed cocoons(output) has to be transacted through seed cocoon market.
9. Transport facilities for lifting seed cocoons, from villages to market has to be provided. A nominal fee of Rs.1/- per kg may be charged.
10. The extension staff should organise farmers' meet, where the weak and strong points based on the experience of co-farmers which favour good performance are discussed.
11. Villages may be adopted and linked with grainage centres for promoting BV cocoon production. Grainages should adopt villages and coordinate with the seed area, ADS.
12. Extension staff should advise and motivate farmers for use of inputs, substitutes (to meet the shortfall or non-availability) to ensure acceptable level of garden management, for production of quality leaf.

SERICULTURE IN NEW AREAS OF KARNATAKA: A CASE STUDY OF GULBARGA DISTRICT

I. Maruthi and K.J. Parameswarappa

I. Introduction

In recent years sericulture have been making its way into new areas. It is mainly due to its comparatively high profitability when compared to many other competing crops and efforts put in by the department to take sericulture into new areas. Traditionally in Karnataka, sericulture was confined to southern districts, now sericulture has made inroads into all the districts of the State. During 1980-81 the traditional districts comprising Mysore, Mandya, Kolar, Bangalore and Tumkur accounted for 94.1 per cent of the total area under mulberry whereas the share of the remaining 15 districts was just 5.9 per cent, but for the year 1993-94 it was 86.8 per cent for the traditional districts and 13.2 per cent in case of other districts. It clearly indicates that sericulture has shown considerable growth in new areas of Karnataka.

New areas or non-traditional areas have problems in providing support in matters such as technical, training, credit, marketing, setting up of reeling units etc. and their utilization by the beneficiaries. Above all the co-ordination of different agencies for continuous support play an important role in ensuring the success and sustainability of sericulture. But in recent years it has been observed that sericulture has not established itself to the extent expected. Though the area under mulberry in new areas show an increase over the years, the area under mulberry is characterized by frequent uprooting. This problem seems to be very acute in northern districts of Karnataka which are

known for low rainfall and frequent spells of drought. Low rainfall, frequent spells of drought, fluctuation in price and poor marketing facilities seem to be among the reasons for uprooting of mulberry.

Keeping these points in view this study has been undertaken with the objective of assessing the overall situation of sericulture in the new areas with the following specific objectives;

* **To understand the importance accorded by the new area farmers and their perception about sericulture,**

* **To examine the problems faced by new area farmers in practicing sericulture,**

* **To explore the reasons for uprooting of mulberry,**

* **To study the perceptions of non-sericultrists about sericulture.**

II. Study area and methodology

This study has been undertaken in Gulbarga district of North Karnataka where sericulture was introduced about two decades ago. Gulbarga falls under Hyderabad Karnataka region. It is a well known fact that the Hyderabad Karnataka region has lagged behind other districts in terms of development. The district receives low rainfall and is often subject to spells of drought. Mulberry occupies a very negligible portion of the total cultivated area. Its contribution to the total mulberry area of the state was just 0.74 per cent contributing about 0.35 per cent of the state's cocoon production. The study

is restricted to two TSC ranges within Gulburga district namely Alland and Gulburga. Alland stands first in terms of area under mulberry and cocoon production in the district. Gulburga TSC range has a much smaller area under mulberry and experienced high a rate of uprooting in recent years.

To fulfil the objectives of the study both qualitative and quantitative data have been collected from the respondents through questionnaires, group discussion and conversational interviews. Detailed information was collected from 60 sericultrists and 60 non-sericulturists.

III Socio Economic Characters

Though sericulture has been practiced in this district for the past 20 years, a majority of the respondents have taken to sericulture in the last 8-10 years. The sericulturists are found in all castes with a high rate of representation of SCs and STs. About 42 per cent of them have sericulture experience ranging from 1-5 years, 33 per cent for 6-10 years and 22 per cent for 10-15 years. Very few large farmers are in sericulture and most of the sericulturists fall under small and medium category. Many SC farmers have taken up this activity as a major source of income.

The average land holding size of the respondents varies from 3.21 acres in the case of small farmers to 25 acres in the case of large farmers. On an average 18.37 per cent of the area is irrigated, it varies from 10.8 per cent among large farmers to 29.99 per cent in medium size class farmers.

In respect of mulberry area, area under mulberry varies directly with the holding size. Average area under mulberry among small farmers was 0.68 acres which

accounts for 21.18 per cent of their land holding. In case of medium farmers mulberry area was 0.92 acres (11.94 per cent) and it was 1.10 acres (4.40 per cent) in the case of large farmers. On an average respondent farmers devoted 8.67 per cent of their land holding to sericulture with the average size of 0.88 acres. Average holding size of non sericultrists was higher than sericulturists with comparatively low irrigated area.

IV Mulberry Garden

a) Garden Maintenance: The system of planting followed was the pit system with 2 X 2 spacing. Usually uniform distance between rows is maintained whereas distance between plants is very uneven. All the mulberry gardens are irrigated. Though mulberry gardens are under irrigation none of the gardens will get water throughout the year. Open wells are the main source of irrigation. In one village about 40 SC farmers have taken up mulberry cultivation with a common bore well given under a Government scheme.

Another common feature one can observe is the large number of failed pits in the gardens. As we know, Gulbarga falls under the northern dry zone. It experiences very high temperature during summer and occurrence of drought is a very common phenomenon. This situation many a times leads to death of plants. Farmers have rarely taken up gap filling. So plant population in many gardens is less than optimum. Some farmers express their view that, mulberry is not suited to their soils because of very shallow top soil. The depth of the soil is 1 to 1.5 feet, presence of hard rock make it difficult for the mulberry plants to establish themselves.

b) Variety: M5 is the mulberry variety cultivated and in some cases M5 is also mixed with the local variety, since the planting material supplied itself was mixed. As such farmers do not have any preference for any variety and also they don't have any idea about drought resistent varieties.

c) Fertilizer application: Sericulture farmers gave first preference to mulberry while applying farm yard manure (FYM). Very few farmers apply purchased FYM. Application of FYM varies from 10 cartloads to 30 cartloads per acre. With regard to chemical fertilizers, its application is not uniform and many times it depends on their financial position and availability at that time. Most of the farmers apply about 2 quintals of complex per acre (17:17:17 or 15:15:15) and urea is rarely used. It is observed that none of the farmers we met have any idea about the recommended dosage of fertilizer and none of the respondents tried to get their soils tested.

V Rearing

a) DFLs consumption: The average number of dfls brushed per acre per year is about 522. There is not much difference among different size class of the farmers with regard to layings brushed per acre. It varies from 497 in the case of small farmers to 544 in the case of large farmers. The difference is may be due to the availability of water. Layings consumed per acre in study area was less when compared to traditional areas. This can be attributed to lack of irrigation throughout the year and due to high temperature during summer, when it is not possible to take up rearing for about 3-4 months. The number of layings brushed per batch varies directly with the holding size. It is lowest at 82 layings in case of small farmers and highest among large farmers with 160 layings.

It was observed that farmers in the study area buy all their dfls requirements from the government grainage in Bidar and there is no choice open to them. Very rarely farmers buy layings from private sources. Usually they get their layings requirement through the department from Bidar Grainage. In case of non-availability of layings in Bidar grainage, the department personnel will make arrangements to procure from an other source. In our studies in traditional areas it was common to hear complaints about quality of layings and many farmers use to attribute crop failures or low yield to the quality of layings. In contrast to those farmers, we don't find any farmers attributing their yield performance to the quality and source of layings.

c) Rearing House: Provision for good rearing house is pre-requisite for proper rearing of silk worms. Many other factors like spacing and disinfection depends on the availability of separate rearing house which determines the success of rearing. In our study area availability of rearing space and proper building is a major hurdle facing the farmers. It was observed that only 10 per cent of the respondents have separate rearing house, 30 per cent of the respondents carry out their rearing in a separate room exclusively meant for rearing and 60 per cent of the farmers manage with in their dwelling house itself.

As we know, Gulbarga district is known for low rainfall and high temperature during certain periods of the year. But we have not observed any farmer making arrangements for temperature and humidity control.

d) Rearing equipments: It is very common to observe lack of sufficient number of rearing equipments with the farmers, and reinvestment on sericulture seems to be very low. In many cases they have not bothered to replace their

rearing equipments which they had purchased in the beginning. Though none of the respondents have a sufficient number of trays, they manage by borrowing trays from fellow rearers. Exchange of trays among rearers is a common feature. All the farmers use wooden trays supplied by the department for chawki rearing. With regard to chandrikes, none of the respondents had sufficient number of chandrikes. Availability of chandrikes even on rent is very difficult. Most of the SC/ST farmers are supplied with plastic chandrikes by the department. They feel that with plastic chandrikes, the quality of cocoons goes down and the incidence of urinated cocoons is quite high. In some cases farmers develop their own alternative. They mount the worms on dried twigs of mango trees or pigeon pea plant placed in trays.

e) Chawki rearing: It is very interesting to note the importance attached by the farmers for chawki rearing. Almost all the respondents follow the recommended method for chawki rearing. This is one of the activities in which one can see the involvement of department staff to the full extent. They opine that success of crops depends on chawki rearing. Wherever Government CRC buildings are present chawki rearing will be done in that CRC. In two sericulture intensive villages we visited all the farmers do their chawki rearing in the Government building with the help of the demonstrator and operatives. Many farmers felt that but for the CRC it would not have been possible for them to clean and disinfect the rearing space properly. In addition to this these centres are servicing as meeting point for all the rearers where they can discuss their problems. These informal discussions are also helping them in sustaining sericulture and in some cases motivating others to take up this activity.

f) Disinfection: All sericulturists use formalin as the main disinfectant as it is supplied free of cost. The trays are disinfected by spraying formalin and smearing cow dung mixed with formalin. Though all sericulturists spray formalin for rearing houses many farmers feel that it is not possible for them to keep the rearing house closed for a long period as rearing is done in the dwelling house. No farmer is using bleaching powder. Some farmers apply formalin chaff irrespective of any sign of disease or not. Some farmers practice it whenever they observe symptoms of disease. Using of RKO powder or any other chemical is not common. Very few farmers use RKO powder with the advice of department officials.

VI Yield and Returns

The yield per 100 dfls among respondents varies from 23.50 kgs to 36.7 kgs. On an average respondents achieved the yield level of 32.08 Kgs. If we consider the average number of layings brushed per acre, i.e., about 521.72 layings, the total yield per acre works out to 167.37 kgs. It was noticed that though small farmers achieved higher level of productivity per 100 dfls, their cocoon production per acre is lower when compared to the other two groups. It was observed that large farmers who were brushing more number of layings per batch (160) have harvested lowest yield per 100 layings when compared to other two categories.

Cost and Returns

The per acre expenditure of large farmers was Rs.13,462.68 followed by medium farmers with Rs.12,832.18 and Rs.12,703.73 by small farmers. The gross revenue per acre varies from Rs.17,045.28 in the case of small farmers to Rs.17,788.79 in the case of medium armers. On an average respondents

realized gross revenue of Rs.17,481.80. The net revenue was highest among medium armers amounting to Rs.4,956.61 and lowest on large farmers amounting to Rs.4,051.11. With the exclusion of family labor cost returns per acre shows inverse relationship with the size class. It was highest (Rs.9,686.39) among small farmers and lowest (Rs.7,734.37) among large farmers.

VII Marketing of Cocoons

Jeevargi is the nearest cocoon market in our study area, but most of the rearers prefer traditional area markets like Ramanagaram and Kanakapura as they get a higher price. Their decision to opt for Jeevargi or traditional area market depends upon the quantity of cocoons. If they have less than 25-30 kgs of cocoons they go to Jeevargi market as the expenses involved in going to Ramanagaram market will not be compensated if they carry a small quantity.

The respondents are not happy with the competitiveness in Jeevargi market and they feel that there is some sort of understanding between the bidders as they are few in number and they do not allow prices to go up after a certain level. The payment of 5 rupee bonus has also not made any impact on rearers as it was rarely on time. Some farmers have spent more money than what they have received as bonus in the process of collecting it.

VIII Extension

DOS has the role of providing technical support for sericulture and to motivate farmers to practice sericulture. But our observations made us to believe that they have failed in motivating them to accept the same. It is mainly because farmers does not seems to have realized their importance. They have

programs to select some good rearers as contact farmers and helping him in all aspects of sericulture by providing some incentives. But it doesn't seem to have made any impact as some of the adopted farmers themselves are bad rearers. This will discourage others rather then encouraging others.

Another important fact noticed was the lack of conviction among the extension staff about the suitability of sericulture to this region. Many of the extension staff themselves feels that it is not a crop for this region and it is very difficult to convince farmers about it. So, without one's own conviction it may be difficult to have strong motivation to disseminate sericulture and its technology. It may be said that extension staff lack motivation in their endeavor.

Proper technical support particularly on garden maintenance is lacking. This is an important aspect which needs immediate attention.

IX Reasons for uprooting

In recent years a lot of farmers have opted out of sericulture. In one of our study villages nearly 40 members have uprMwted mulberry crops during the span of 4-5 years. It is very common to come across farmers who have gone out of sericulture. First and foremost reason for uprooting is the lack of water. Due to frequent spells of low rainfall, many wells have dried up during last 2-3 years. We interviewed 38 farmers who have gone out of sericulture during past 3-4 years. The main reasons for uprooting are;

* **Water Scarcity**
* **Continuous Crop failures**
* **Scarcity of Labor**
* **Difficulties in Managing the Rearing activity**

* **Low price /Price fluctuations**
* **Low profitability**
* **Marketing problems**

X Perception of non sericulturists

To understand the perceptions of non-sericultrists, conversational interviews have been carried out with 60 non sericultrists. Compared to traditional areas, farmers in Gulbarga have bigger landholding. The overall agricultural activity is seasonal and they are not used to intensive agriculture as in the case of traditional sericulture districts. The main reasons for not taking up sericulture are;

* **Lack of irrigation**
* **Not Convinced about its Suitability**
* **Difficulties in management**
* **Do not Want to go into it as other have failed**
* **Not given a thought**

XI Conclusion and Suggestions:

Our analysis shows that sericulture in the study area seems to be passing through a critical phase. Many farmers are opting out of sericulture due to various factors, including Water scarcity, low and fluctuating prices, crop failure and poor yields. The major causes responsible for poor yield are poor management of mulberry gardens and poor rearing infrastructure. Our analysis also revealed that sericulture is thriving mostly with small and medium farmers. For large farmers, relatively large landholding size and inability to cope with the rearing seems to be the additional deterrents with the factor mentioned earlier.

By keeping these points in view the following suggestions have been worked out.

Suggestions:

1. Given the acute water scarcity conditions, a greater thrust needs to be placed on (a) popularization of drought resistent varieties like S13 and S34; (b) There is a need to inculcate better water management practices among the farmers by adopting dry farming techniques to make use of limited available water more efficiently.
2. Availability of good planting material is the another problem faced by the farmers. It is advisable to make arrangements to supply planting material with nominal price.
3. Many farmers have not made any reinvestment in recent past, particularly on rearing equipment and to improve the condition of rearing house. There is a need to motivate the farmers to make reinvestment.
4. Some of the farmers who dropped out of sericulture had experienced continuous poor yield mainly due to the poor motivation on their part and also due to inadequate infrastructure. For sericultrists who are getting poor yield it is necessary to provide continuous follow up visits and necessary support so that they can attain an optimal efficiency.
5. There is a need for strengthening and consolidating sericulture in the existing areas under mulberry, even while targeting for the expansion. The viability of sericulture, if demonstrated in terms of higher profitability and risks, will act as a motivating factor for prospective sericulture.
6. CRC centers in Kadaganchi and Thellur are successfully utilized by the farmers for chawki rearing. One can find good cooperation among

farmers, one can call them as informal cooperatives. These centers are serving as meeting point for rearers where they can discuss about various problems in sericulture. Steps may be taken to promote such informal CRC's in other areas also. If possible these CRC's can be further strengthened by formal recognition and providing financial assistance.

7. Steps may be taken to organize cooperatives whose main task should be of supplying chandrikes on rental basis. If possible some rich farmers can be motivated to invest on chandrikes. Since there is a lot of demand for bamboo chandrikes, one can earn money by renting them.

8. Informal groups in Kadaganchi and Tellur are one of the reasons for better sericulture in those village. Introducing the concept of group formation in other villages also can be thought of.

9. Concentration of efforts on small and medium farmers who have greater chances of sustaining sericulture when compared to large farmers.

10. In Tellur most of the rearers are younger people, many of them are either graduates, college dropouts or college going students. Many of them take it as an alternative employment. Efforts can be made for bringing more member of youngsters into sericulture.

11. Farmers are facing problems in getting layings in time, particularly at the beginning of the crop season (June-July). Functioning of Government grainage at Bidar should be streamlined so as to supply layings in time.

12. Care should be taken while selecting contact/adopted farmers.

13. In some cases SC/ST have entered into sericulture mainly to get subsidy amount and later they have discontinued. So, it is necessary to take utmost care while selecting the beneficiaries.

14. Firm conviction about the suitability of sericulture and motivation to convince farmers seems to be lacking among extension staff. Steps should be taken to boost the morale of the extension staff by organizing regular training programs.

15. Payment of five rupees incentive for selling cocoons in new area markets has not made any impact as it is seldomly paid on time. Arrangements should be made to pay the same in time.

16. Some reelers opine that in the Bangalore Silk Exchange, the new area reelers are discriminated against, either in the form of lower prices or condemning the quality though the middlemen even though the quality might be the same as that from the traditional areas. This sort of demoralizing has to be set right by the intervention of the KSMB.

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Findings:

1. A substantial number of sericulture workers suffer from occupational asthma, following an allergic reaction to silk allergens.

2. Many of the workers in sericulture, particularly in reeling units started working in them from an early age, around 5-6 years of age (our sample indicated that nearly half of the reeling workers started at this age) . This, with the additional fact that they worked in reeling for several years, results in asthma, at least in some of the workers.

3. Occupational rhinitis was also noticed in some workers----and allergic to silk allergens, a hitherto unknown fact.

4. Medication for the afflicted was irregular in most of the workers, and was related to their economic situation. However, there is a need for continuous medication once asthma set in.

5. Some of those with asthma took corticosteroids for an extensive period, resulting in substantial side effects from continuous use.

6. The general level of ignorance about the dangers associated with either low/irregular medication as well as taking corticosteroids for extended periods of time is of considerable concern.

While the respiratory problem was of immediate physical concern to the sufferers, their medical treatment needs to be noted too. The observed problems in treatment were as follows:

i) Due mainly to the economic condition of the workers, they were reluctant to meet local private physicians more than when they thought it was absolutely necessary. This meant that self-medicating, or buying whatever the pharmacist recommended was the normal practice. A variation of this practice was that when a doctor prescribed some medicines, the prescription was kept for long after the period that the doctor had mentioned, and medicines were bought using the same prescription.

ii) Again, due to their poverty, workers often took less than the dosage mentioned by the doctor, under the belief that this would not cause much problems to them.

iii) Some asthma sufferers took medicines **only** when they felt acute discomfort, and not regularly.

iv) Sharing of prescriptions was quite common, to avoid visiting a physician and paying his fee.

7. Asthma, and the medication required for it, drained a substantial part of the workers' income. This affected their standard of life, including their food, and most importantly the possibility or otherwise of sending their children to school. Not sending their children to school very often resulted in their children being brought in to work in the reeling units at a very young age. Children in these families, played an adult role, of helping to support the family with their earnings.

8. Dr. Mukesh Ramnane, skin specialist from St. Martha's Hospital, observed pitted keratolysis and fungal infection among reeling labourers, related to constant wetting of their hands. Workers were given some ointment by reeling unit owners (which we could not identify) for the skin condition and they claimed the ointment had some positive effect.

Recommendations:

1. The remedial measures that would reduce the morbidi due to allergy to silk allergens can be considered under two categories:

   a) At the level of the workspace

   b) At the level of the individual worker

The work space and environment as it exists now is obviously exposing these subjects to an environment that allows entry of allergens into their systems. This can be eliminated either through a process that does not liberate allergens into the atmosphere or by protecting the workers from inhaling the allergens. For instance, the installation of a covered, automated, dry roasting system which is used to kill the pupae may be preferable as this lessens the chances Mw allergen exposure while boiling cocoons. Dry roasting polymerizes the

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proteins in the outer layers so that less allergens than in the conventional process are released at a later stage. Ideally, the whole process of boiling should be avoided and this will involve the use of an enzymatic method to dissolve the gum and yet retain the quality of silk. Such a process will eliminate the allergen exposure to a large extent and perhaps minimize the incidence of occupational asthma. Alternatives such as the use of industrial exhaust fans (not the domestic kitchen variety) may be considered to reduce suspended allergens.

2. While charkas are extensively used in reeling, the technology involved is not conducive to reducing the suspended allergens. Cooking of cocoons as well as reeling is done in the same basin, which is generally in front of the person doing the reeling work. Therefore, the person is continuously exposed to silk allergens for several hours every working day. A modification in technology may help reduce this problem, and may also be cheaper than measures such as installing exhaust fans.

At the level of the individual worker, it is feasible to think of some options.

i. Periodic allergy skin tests can be performed on young subjects who have entered the silk work, and if they are found to be allergic, they can be counselled to take up some other occupation, as they are more likely to later suffer from asthma. Obviously, the feasibility of these tests have to be worked out; further, it may not be possible to predict the occurrence of occupational asthma with the desired level of accuracy even by this means.

ii. Subjects who have a strong family history of asthma may be counselled to desist from taking up this work, but again this may not always be possible due to socio-economic reasons.

iii. Once a worker in the silk work develops early symptoms of asthma, it is best that he is advised to leave the occupation so that his asthma does not worsen. Some studies have shown that this is the only way of minimising the long term suffering from occupational asthma.

From the above it is clear that one is dealing with a formidable problem with medical and socioeconomic implications of far-reaching consequences. There are no easy answers to this problem and only more concerted efforts will be able to minimise the mobidity of occupational asthma due to sericulture.

3. The use of formalin in the egg disinfecting rooms are inevitable. However, the inhalation of formalin fumes can be reduced if wet cotton masks are used. Better would be if large curtains of jute or straw are hung, which are also constantly kept wet through spraying water. The water in the curtains helps absorb the fumes of formalin, and prevents burning of eyes and nasal mucosa as well as skin problems (dermatitis). While this may be beneficial from a health angle, it is not known whether it would reduce the effectiveness of the disinfection itself. This needs more research.

4. If some measures are taken to avoid the necessity of bringing infants into reeling units, it may help in warding off respiratory problems in the infants.

This is obviously a social problem that is difficult to solve. Poverty makes it necessary for mothers to work even when they are nursing their infants, and since they need to be near the infants, these children are either placed in a corner of a reeling unit, or hung from a cradle within the reeling unit.

5. The general ignorance among those with asthma could be reduced with a sustained campaign to educate them, both about the proper care of asthmatics as well as related to medication.

6. Many reeling workers felt that if the government instituted ESI facilities, it would make their situation much better. The fact that most reeling units are privately owned resulted in medical expenses being met by workers out of their own earnings. The present system of government clinics and hospitals generally did not provide adequate treatment or medicines, and they had to buy medicines from pharmacies, and thereby incurring a considerable strain on their financial resources.

7. A number of workers suggested that if a certain amount of organization of reeling was possible, it may help control the number of hours of work, the wages paid, as well as providing some security through provident funds and gratuity. With the present conditions, workers were almost entirely at the mercy of the reeling owners, and ill-health and closure of units caused them much hardship.

8. Education for the child labourers may help in getting them some other jobs, which may have some impact in reducing the health problems associated with allergic reactions to silk allergens.

9. Lack of hygiene, proper ventilation and drainage facilities were instrumental in compounding the problems already associated with silk allergy. Even those not directly involved, in reeling for instance, suffered from allergic reactions if they lived in the neighbourhood of the reeling units, such as in a different part of the house from which the reeling work was being done.

10. Remedies for the skin problems are related to the workers keeping their hands and feet dry, which is not really feasible in the present conditions of the reeling units. Dr. Ramnane considered the use of gloves impractical due to the high costs involved. Thus, he suggested that the workers could continue using the ointment that they now had, and carry on as they were, since even if they were prescribed some medicine, the relief would only be temporary, and once they resumed work, the skin condition would return to its earlier state.

SERICULTURE IN NEW AREAS OF TAMIL NADU

P. Pugazhendi and G. Saraswathi

Introduction

Sericulture is practised by all types of farmers (marginal, small, medium and large) in the new areas of Tamil Nadu. There are 10 districts coming under the new areas in Tamil Nadu, but the area under mulberry is minimal. When compared to traditional districts the total area under mulberry in the new area is 1711.5 acres and the total cocoon production is 1,58,634 Kgs as on March 1995 which accounted for 5.58 per cent and 2.12 per cent of the total mulberry area and the total cocoon production in Tamil Nadu respectively.

Sericulture is usually a rural based activity, and the early stages of the mulberry cultivation and cocoon production cycle are labour intensive, thus easing employment problem; and it can be undertaken by the family.

Sericulture offers some advantages to marginal, and small farmers and the landless labourers and only in some pockets of new areas it competes with other crops like Cotton, Tapioca, Turmeric and Sunflower crops. There main factors that motivate the farmers to cultivate the particular crops are the availability of water, cost and returns from the crops.

Sericulture is a complex agro-industrial process needing considerable skills. Attempts to introduce sericulture to several districts in new areas of Tamil Nadu have not always been successful.

One of the major problems confronted by the sericulture industry is uprooting of mulberry plants. Usually uprooting takes place when the farmer is unable to get reasonable returns. There are many factors responsible for uprooting but, generally farmers consider the cocoon price and poor availability of water as the major causes.

The DOS sets the target for the expansion of area under mulberry in new areas. It is done in consultation with the extension staff who work at the grassroot level. However, the extension staff find it difficult to achieve the set target. The reason for failure to achieve the target is the farmers' reluctance to take up sericulture due to (i) shortage of water and adverse climatic conditions (ii) risk and crop failure. Crop failure is cited as a common reason both by sericulturists and non-sericulturists for not expanding the mulberry garden or for not taking up sericulture respectively.

The pre-requisites for the success of sericulture are many: they are a high degree of effective organisation, easy availability of several vital inputs such as disinfectants, rearing stands, trays, thermometer, rearing shed, skilled man-power at each stage of rearing activities and an effective marketing and distributing system. Lack of input or brief break down in the distribution system may mean a difference between high production and low/no production.

This study makes an attempt to find out the major cropping pattern in the new areas and the rationale of different categories of farmers - marginal, small, medium and large for their preference for different crops.

The objectives of the study are:

* to study the major cropping pattern in this areas;
* to study why sericulture is not flourishing in this areas;
* to study the cost and returns of mulberry vis-a-vis other crops; and
* to study the extension support, infrastructure and marketing support in this areas.

Area coverage

The study covers three districts viz: Dharmapuri, Madurai and Thirunalveli districts which have the maximum area under mulberry and also the highest number of sericulturists. Two Technical Service Centres (Melur and Theni) from Madurai district, two Technical Service Centres (Kadayanallur and Adaikkalappattinam) from Nellai district, and one Technical Service Centre from Dharmapuri district, for a total of five Technical Service Centres have been selected for this study. Although Dharmapuri district is usually considered as a traditional sericulture district in Tamil Nadu, this district has also been included in the new area study for the following reasons: The area in Dharmapuri has had sericulture activities only for a relatively short period. Sericulture in new area means, the sericulturists have sericulture experience below 10 years. 227 sericulturists have been covered from the selected areas.

The data have been collected through the questionnaire method along with conversational interviews.

Caste composition

In the new area most of the villages are multi- caste villages. Thevar, Nadar and Vanniya Gounder (B.C) are the majority. Thevars and Vanniya Gounders are basically land owning class and mostly large farmers. S.Cs are also found

in significant numbers in new area and of the 227 sericulturists studied 61 belong to S.C which accounted for 26.87 per cent.

Status of Sericulture

Of the 227 sericulturists, 72.69 per cent of the sericulturists are marginal and small farmers and 27.31 per cent fall under medium and large farmer category in new area. The minimum sericulture experience of the farmer is 2 years and maximum is 8 years. The average sericulture experience of the farmer is 5 years in this area.

The minimum holding of the mulberry garden is .25 acre and the average holding of the mulberry garden is .5 acre. In the new area, 64.59 per cent of the common mulberry variety cultivated by the sericulturist is MR2 and 31.57 per cent of the mulberry variety is M5 and the remaining 3.84 per cent is local variety.

Other crops

Since most of the land available is with less irrigation facilities, crops like jowar, maize, ragi and tapioca are cultivated extensively in this area. Crops like sunflower, Groundnut and Cotton are also raised to considerable extent. Paddy and sugarcane cover about 5 per cent of the area. The vast majority of the farmers cannot switch over to mulberry crop because of the risk of crop failure and they think it is less remunerative when compared to other crops and also workload and pressure are lower in other crops.

Cost and returns

Intensive sericulture activity starts from June/July and extends up to February/March. During the year, they take up 4-5 crops and with DFLs brushed per acre per year being around 689 in Dharmapuri areas, 435 in Madurai areas and 540 in Nellai district areas. The average cocoon yield per acre is 278.79 Kgs in Dharmapuri, 141.96 Kgs in Madurai and 186.44 Kgs in Nellai per acre per annum and they realise an average yield of 40.46, 32.62 and 34.5 Kgs of cocoons per 100 DFLs in Dharmapuri, Madurai and Nellai areas. From the analysis it can be seen that the overall cost of cultivation of mulberry garden and silk worm rearing per acre per year are Rs.16,966, Rs.11,365 and Rs.15,902 in Dharmapuri, Madurai and Nellai areas and average net returns are Rs. 12,306, Rs. 3,112 and Rs. 3,677 in the same areas. The analysis also reveals that the cost of cultivation of other crops (Cotton, Sunflower and Tapioca) are less and the average value of total produces are also very high level. This is the major reason for limited sericultural development.

Labour

Sericulture operations connected with mulberry cultivation and silkworm rearing together require high level of labour per unit of land, especially the family labour (57 per cent). Among the family labour, most of the sericulture activities are done by females and crucial activities like moult setting, and disinfection are done by males. But one of the main obstacles in the new area is labour shortage. Wage rate for male per day is 45 rupees and 30 rupees for female for all the activities. Sericulture activities are mostly concentrated among those who have enough family labour.

Sustainability

1. Cocoon price

Cocoon price plays a major role in the development of sericulture. Fluctuation in cocoon price directly affects the sericulturists, expansion of the area under mulberry and cocoon production. There is always a possibility of sudden fall in the price of cocoon to a record minimum of Rs 50 while the DFLs price goes upto Rs.250 or above. This makes sericulturists anxious, and raises questions regarding the future of sericulture. Farmers opine that reasonable price of cocoon should cross at least Rs 100 per Kg of cocoon and the supply of quality layings will sustain the sericulturists and also help further expansion without any displacement.

2. Access to irrigation

Well irrigation is one of the main sources of irrigation in this area. Adequate irrigation facilities help maximum use of fertilizers and increase the number of crops per year, etc. Among the sericulturists about 40 per cent have access to only rainfed land while about 35 per cent have access to land having some irrigation throughout the year. During the summer months wells do not yield enough water, and this leads the sericulturists to reducing the scale of operations in this area.

3. Credit

Another very important input is the availability of credit (capital) for increasing sericulture activities. More importantly, sericulture development and sustainability is dependent on the easy access to credit. Seventy three per cent of the sericulturists fall under the category of marginal and small farmers. This class of farmers lack resources for investment for establishing rearing shed,

purchasing rearing equipment and expansion of the area under mulberry. Inadequacy of credit is one of the bottlenecks. The sharp increase of input prices especially fertilizer prices also divert the attention to greater use of inorganic fertilizer. The institutional credit is accessible only to the well off section of the society. Credit facilities does not readily become available to them according to their production needs. This rules out the possibility of the marginal and small farmers expanding their sericulture activities.

4. Marketing

The nearest market available for the sericulturists here are Dharmapuri, Theni and Thenkasi. The next nearest market is Sirivalliputhur. Sericulturists prefer to go to a market where high price is offered for cocoons, and the sericulturist in this village go to either of these markets depending on the price situation, the quality of their cocoon produce, and combining other needs like procurement of DFLs etc. Though there are good cocoon markets and marketing facilities in Tamil Nadu, 15 per cent of the farmers go to Ramanagaram and Kollegal markets in Karnataka because of the price factors. Cocoon price provide the encouragement to the sericulturist to take up sericulture in new areas, and to expand the area under mulberry. If the cocoon price goes down the sericulturist immediately uproots the mulberry garden and shifts to other short duration crops like groundnut, sunflower, ragi, jowar and paddy.

Sericulture and Weaker Sections

The SCs and the weaker sections are at the lowest level of accessibility to most of the resources including land, water and other inputs and infrastructure. The initial investment becomes a problem. Lack of hygiene, lack of sufficient

infrastructure facilities, lack of technical knowledge and separate rearing shed forces the sericulturist panickally and thus ends many times in crop failure.

Infrastructure

Source of DFLs

There is no fixed trend in their preference for any particular source for dfls in Madurai and Nellai areas. But in Dharmapuri more than 55 per cent of the sericulturists procure the DFLs from private source only.

Seasonal variation

There is also a seasonal variation in the yield level as well as in the DFLs consumption. The yield level increases from July to January. As far as the dfls consumption, it is highest in the months from July to December. This is mainly because of the highest participation of sericulturists in the villages as they have more water. There are as many as 10 percent of the respondents who have obtained more than 45 kgs /100 dfls. However, 25 per cent of the respondents realised a yield of less than 25 kgs. Poor quality of mulberry leaf and lack of technical knowledge rank the highest among the reasons for poor performance.

Extension support

Intensification of sericultural extension system is required to narrow the sericulture information gap between the sericulturist and field level staff in Madurai and Nellai areas. More emphasis is placed by field extension staff on silkworm rearing, disinfection methods and disease control measures in Dharmapuri areas, while a very low priority is given to mulberry garden maintenance and silk worm rearing practices in Nellai and Madurai districts because of the following reasons.

1. Technical services of the regions are not reaching the farmers and reelers.
2. Another aspect for the extension staff not to show interest in their work is lack of promotion chances (which was openly asserted by many of JIS and AIS level staff).
3. Withdrawal of NSP from southern districts of Tamil Nadu affected the staff and farmers.

Reasons for Uprooting

1. Farmers in the new area as they are new to the sericulture had to depend on other sericulturists, who at times misguided them.
2. There is labour problem as the youngsters do not want to stay in the village and take up agriculture or sericulture. They wish to work outside the village in factories, hotels, garages etc., which they feel is more prestigious than working as labour in a village.
3. A psychological factor is that once one farmer in a village uproots, other sericulturists (like a sheep following other sheep) without even asking or knowing the reason behind the uprooting, they also immediately uproot. This is seen in many of the villages.
4. A few sericulturists who had mulberry planted for more than 10 years started uprooting as the soil had lost its qualities and the leaf yield was low/quality of leaf was also low which affected the worms and there was continuous crop loss for them. They want to try in another plot of land or if they do not have land they would like to cultivate other crops for one or two years and then take up sericulture again.

5. Farmers opine that sericulture is not `labour dependable' job. Labourers work only for the wage and lacks technical knowledge and personal interest. If there is a crop loss, the labourer does not feel the psychological pressure of stress and strain and mental tension faced by the owner. The labourer collects his wage and moves off.

6. Water is another serious problem for not taking up sericulture. Some wells which are free from rocks get sufficient water, otherwise there is no water even for drinking and regular usage purpose.

7. Extension services are lacking in educating the farmers about the proper utilization of available water resource, time management, appropriate use of family labour without hiring outside labour by brushing less number of dfls, proper disinfection, spacing, temperature control etc. A new sericulturist needs more extension support as the farmer is totally new to the sericulture.

Suggestions

1. Special attention should be given to the new sericulturist for gaining their trust and resorting their confidence.

2. Extension services should be strengthened and streamlined in Madurai and Nellai areas.

3. Proper training should be given to sericulturist as well as gross root level staffs especially in Madurai and Nellai areas.

4. Intensive efforts should be made by the DOS for the establishment of reeling units in the study area.

5. Lack of motivation is also one of the important factors among the farmers not to taking up the sericulture. Farmers should be motivated by the grassroot level officers and arrange group discussions across with farmers to share their sericulture experience once in 30 days or every crops.

6. Extension staff should have frequent touch with sericulturist especially in Madurai and Nellai areas.

7. DOS should concentrate only limited pockets where atleast partial irrigation facilities are available.

8. Under water scarcity condition, most farmers have uprooted mulberry and gone in for short duration crops. The strategy should be to propagate the exclusively drought resistance varieties

9. There is a need for strengthening and consolidating sericulture in the existing area (western ghat) under mulberry, even while targeting for further expansion.

LOCAL RACE SILKWORM SEED COCOON PRODUCTION IN TAMIL NADU
A STUDY OF TWO CLUSTERS IN DENKANIKOTAI SEED AREA

K.V. Govinda Raju and R. Doraiswamy

1. General

Since the early 1980's sericulture in Tamil Nadu has been undergoing a significant technological transformation. The factors which have played a significant role in contributing to the present status of sericulture development in the state can be grouped under two major categories:

- Expansion of mulberry area under irrigation with improved varieties of mulberry and silkworm;
- Providing sericultural services like input supply, extension, credit and marketing support etc.

The level and quality of services available to the farmers is generally viewed as a major factor in sericulture development. Under the National Sericulture Project (NSP), the Department of Sericulture (DOS), is creating necessary infrastructure facilities and strengthening the existing ones. Production of quality seed and timely supply in the required quantity to the sericulturists forms a back bone of sericulture industry. The success of cocoon crop depends on the good quality disease free silkworm seed. This can be achieved through a well planned and managed seed organisation.

2. Need for the Study

To meet the ever growing demand for silkworm seeds, strengthening of already the existing government F1 grainages and starting new ones by government and through participation of private entrepreneurs is one of the major programmes under the NSP. For this purpose, concerted efforts are made to meet the requirements of parental seed cocoons {Local Race (LR) and Bivoltine (BV) Race} to these grainages under the seed production programme. This is sought to be achieved through organising separate "notified seed areas" for LR and BV. The DOS has identified Denkanikotai (for LR) and Hosur (for BV) talukas of Dharmapuri district for the production of parental seed cocoons. In the case of BV seed parental cocoons, in addition to Hosur taluka, sericulturists in Coimbatore district, have also been promoted through "adopted rearers" to meet its requirements. The Department is providing the required production infrastructure, inputs, extension services, market support etc., so as to make seed cocoon production a more viable and sustainable at the farmers level. In this context, the accessibility to the available institutional services, the problems involved in qualitative and quantitative production, pricing vis-a-vis returns, have been some of the major concerns in the context of seed production programme in the state.

3. Seed area programme

Denkanikota taluka, has about 3168 acres of mulberry, grown by 4793 sericulturists. About 92 percent of mulberry area is under irrigation, the major source of irrigation are wells. There are four technical service centers (TSCs) to cover the area, with extension staff and is headed by an Assistant Director.

Out of these four TSCs, one TSC is identified for carrying out the seed cocoon production programme. The area coming under this TSC is divided into 12 ranges and each range comprises 2-4 villages. One inspector of sericulture, with 12 junior inspectors (who are incharge of these twelve ranges) are supporting the Assistant Director, in the programme. The seed area includes 44 villages, having 260 acres under mulberry, cultivated by 500 sericulturists. At present the seed cocoon production is restricted to selected villages of these 44 identified villages. Some villages which are found to have potential are kept as "buffer" and these villages are covered as and when there is increased demand for seed cocoons.

4. Criteria for selection of seed rearers

The norms for selecting a sericulturist as seed rearer are as follows:

* Should have irrigated mulberry garden,
* Should have infrastructure like sufficient number of rearing appliances and place for rearing,
* Should not brush more than 150 dfls/batch and
* Should cooperate and adhere to disinfection and other technical advise of the DOS.

5. Objectives

To examine the impact of these programmes and efforts, the following issues were identified for the purpose of the present Beneficiary Assessment (BA) study:

- The level of participation of farmers in the programme and their accessibility to resources;
- The infrastructural base of the DOS and its accessibility;
- The perception of farmers to technology, level of adoption, extension support, problems faced, and
- The factors (like price support, returns...) that contribute to make the programme more acceptable to farmers on a sustainable level.

6. Area Coverage

The study has been carried out in two clusters consisting of four villages namely Marasandram, D.G.Doddi (cluster 1), Ennimuchandram, and Dinnur (cluster 2) and cover 84 sericulturists. The required data are collected through participant observation, conversational interviews and case studies. The study covered the period from April to Dec 1995. The following items form the data base for the study:

* Area under mulberry, type of mulberry, planting method, manure and fertilizers, insecticides, pesticides, source of irrigation, availability of water, constraints in the use of these inputs.
* Awareness about the seed cocoon production programme, supply of inputs (seed, disinfection materials), technical knowhow, crop inspection, guidance they receive by extension visits, market support,incentives offered like insurance, compensation, bonus if any.
* Silkworm rearing at household level like number of rearings, source of dfls/chawki, quality, price received, disinfection (pre-during-post). Inputs

used - effectiveness, crop failures and reasons for failures. Problems faced in carrying out silkworm rearing.

* Perceptions about silkworm rearing technology, accessibility to infrastructure, credit, etc.

7. Profile of the study area and sericulture activity

Agriculture is the main occupation of the people in the area. Eighty percent of the total cultivated land is dependent on rain. Principle sources of irrigation are wells and tanks. Tank water is available only for 3-4 months of the year, which is sufficient for taking a single crop in a year. The area under well irrigation is meager and the available water is sufficient enough to take up a light irrigated crop like mulberry. Before the introduction of mulberry cultivation, farmers used to grow sugarcane. The area under well irrigation is about 102 acres, of which 53 acres are under mulberry in the four villages covered. Other than mulberry, banana (10 acres), sugarcane (5 acres) and vegetables (34 acres) are the crops grown under well irrigation.

Of the total 229 households in the studied clusters, 25 are landless (10.9%). Among the land owning class majority of them are marginal and small farmers (59,4%), and the rest belong to medium and large farmers category (29.7%).

The caste composition of the village, indicates the domination of Vokkaligas (53.7%), followed by Kurubas (18.3%), Madivalas (5.21%), Reddys (4.4%), Vanniars (4.4%) and others (14.0%).

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Mulberry cultivation and silkworm rearing is practiced by 84 households (36.6%). The total area under mulberry is 53 acres, and the average area per household is 0.70 acres. Of the 84 households 3 are landless, 20, 24, 22, and 15 belong to marginal, small, medium and large farmer category respectively. One large farmer with 3 acres of mulberry garden has given the land on "share cropping" basis to six families.

The common mulberry variety grown is local. M5 variety is grown by some farmers, mixed with local variety. The plantation method followed is row system, with 1'x ½' spacing, which is referred to as "Kolar system"

Farmers' experience in silkworm rearing varies across the four studied villages. Majority of farmers from Marasandram and Dinnur are engaged in sericulture activity for more than 5 years, where as the farmers from the other two villages namely Ennimuchandram and D.G.Doddi are having experience of less than five years.

There are 25 households who are rearing silkworms in separate rearing house, 28 households are rearing silkworms in separate room attached to the dwelling house and the rest(31) in the dwelling house.

8. Inputs

On an average six cartloads of farm yard manure (FYM) per acre are applied once in a year. The number of livestock per household is two, and the production of farm yard manure is limited. Farm yard manure is also applied to ragi, a common crop grown by all households. The production of farm yard

manure at the household level is inadequate and the cost of farm yard manure is about Rs.60/- per cartload, which is also not available. Some farmers purchase FYM, in months of March-April from Denkanikotai town. The cost of farm yard manure is Rs.425/- per tractor load (equivalent to 6 cartloads) and the transport charges are Rs.150/-. Now-a-days, this source of farm yard manure is also not accessible to sericulturists, because, it is produced by recently established estates (farm) at a higher price. Under these conditions, the farmers allocate the total quantity available at the household between mulberry and ragi crops.

Sericulturists report that the extension staff recommend the application of 10-12 cartloads of farm yard manure per acre. They are convinced that the application of farm yard manure helps in the production of quality leaves, but its non-availability and increasing cost has become a constraint in following the advise.

In addition to the meager quantity of farm yard manure application, farmers apply chemical fertilizers for every crop. The usual chemical fertilizers which are used are CAN, Complex and Urea. About 90 percent of the sericulturists apply CAN, Complex (given alternatively after each harvest), whereas other 10 percent use CAN, complex and Urea. The quantity of chemical fertilizer used is one bag (50 kgs) of CAN or complex or urea at a time. This quantity of 50 kgs of fertilizers is given irrespective of the extent of mulberry garden.

After each harvest, farmers attend to inter-cultivation practices like weeding, application of fertilisers and irrigation. The garden is irrigated once in a week and during rainy season gardens are irrigated depending on the rainfall.

9. Disinfection

Disinfection of the rearing place and rearing equipments, is compulsory after the cocoon harvest and a week before the commencement of the next batch. There are two different schemes, under which the farmers are covered under the disinfection services. Under the State scheme, disinfection material (bleaching powder) is given free, and the labour charges of Rs.3/- to Rs.5/- are collected per household. In the other scheme (SDC scheme), the rearer is charged Rs.35/- per one time disinfection, which includes material and labour cost. About two kgs of bleaching powder is mixed with water and sprayed. At each such disinfection activity, the staff of DOS, visits the villages with sprayer bleaching powder along with a labourer. The farmer provides water and facilitates for disinfection of the rearing premises.

The rearing equipment are disinfected at the same time. The farmer mixes formalin with cow dung and the trays are washed with this solution. Both disinfection of rearing premises and the equipments is done before and after each rearing.

The common diseases that affect the silkworms are flacherie and grasserie. All farmers use uzi nets (some farmers use two folds of uzi nets). Even then they are not able to prevent the uzi fly attack. They report, that they lose about 3-4 kgs of cocoons in each rearing due to uzi flies.

10. Disease control measures

Measures to prevent and control diseases are taught to the sericulturists during the farmers' training programme organised by the DOS. Some of the sales representatives of private manufacturers of sericulture inputs also visit sericulturist households as part of sales promotion.

Farmers sprinkle lime powder on the worms during rainy and winter seasons after bed cleaning. About six rearers are using formalin chaff in winter months, after bed cleaning. Use of RKO powder is not popular among the seed rearers in the study area. Farmers say, as they are using lime powder and formalin, the use of RKO is not needed. One or two sericulturists use RKO powder. Others are reluctant to use it and express that even without using it, they have obtained good crop.

Rearers are aware of the use of bleaching powder around the rearing premises but it is not regularly practiced by all sericulturists. Farmers opine that it will add to the cost. Besides, while entering the rearing place, the person has to stamp his feet on the powder (as a preventive measure). At each such time, the floor (red oxide) becomes dirty and over time the floor loses its colour. This is not relished by the sericulturists.

11. Temperature and humidity control

During winter the temperature is maintained by the application of lime powder on trays. The rearing stands are covered with gunny bags and windows are closed. They illuminate the rearing place with high voltage bulbs both during

found that the extension staff advise rearers to keep the windows open so as to provide good ventilation otherwise it will affect the growth of worms. Farmers open the windows for sometime but close it after sometime, to avoid the cool breeze.

During summer, rearers keep the door and windows open for free circulation of air. It is observed that in houses which have only one window they keep open the roof tile when they are attending the activities like feeding, bed cleaning etc. After attending to these activities, the tile roof is closed again. Farmers complain, that bandicoots enter the rearing place through these openings and destroy the silkworms.

12. Market

There is a market located at Denkanikotai exclusively to transact seed cocoons. The pebrine free cocoons are purchased at the seed price, which depend on the number of cocoons per kilogram. The price for seed cocoons is fixed on the number and which should be between 825 to 1200. If the cocoons are more than 1200 in number per kg, such lots are not purchased for seed purpose. These cocoons are purchased at the market, at a price of Rs.50/- per kg, which are sent for reeling purpose at the government reeling centers. All lots, which conform to the seed cocoon criteria are purchased at the seed price, which is fixed from time to time. At present they are following the price for seed cocoons that is fixed by the Department of Sericulture, Karnataka state.

The rearers report that they do not ask seed price for uzi infested, melted and jelly cocoons, and do not get any compensation for crop loss due to muscardine, flacherie and grasserie. The price of Rs.50/- per kg of pebrine cocoons (detected in the last stage at the market), will not compensate even the cost of rearing. Hence, they plead for at least 75 per cent of the seed price to the pebrinated cocoons.

13. Transportation

The Department has provided a mobile van facility to transport the seed cocoons from the villages to the market. This has helped the rearer in avoiding the loss/wastage due to transportation and also depending on public transport. Besides, it has protected the cocoon lot from wastage during the rainy season. The sericulturists are charged one rupee per kg of seed cocoon by the Department for providing this facility.

14. Farmers perceptions

The farmers express several advantages in favour of local mulberry variety, in term of inputs use, dosage for its maintenance and its suitability for rearing Local Race of silkworms.

The sericulturists' perception regarding the local mulberry leaf is that it is rich in nutrients and suited for rearing Local Race silkworm. M5 variety fetches higher quantity of mulberry but not suitable for Local Race. The sericulturists

the growth of weeds. According to them, closer spacing, reduces weed growth and saves expenditure on labour for clearing weeds.

Rearers give priority to farm yard manure than chemical fertilizers. According to them use of farm yard manure gives quality leaf and good cocoon yield. Rearers are constrained in applying the dose needed, because of its non availability. Rearers are not aware of other substitutes and they are also not advised for the application of alternate inputs.

Farmers perceive more spacing, demands higher doses of manure and fertiliser. They feel that the application of the same dose of these inputs to the garden under close plantation would give better leaf production per acre in a shorter duration. They also express that the garden with wide spacing is not suitable for branch feeding.

14.1. Rearing Place

There are some rearers who have availed credit for the construction of separate rearing sheds but they have not constructed them. They report that they could not construct a separate rearing shed because of non-availability of land (plot), next to their dwelling house. They asserted that they would have constructed such rearing sheds, on the lands available outside the village.

They are not willing to shift the sericulture activity from the household to a separate shed outside the village. They have conceived sericulture as one of the household activities besides agriculture. They feel, carrying sericulture activity outside their household, would affect the activities. Farmers have also, expressed lack of insecurity at the isolated rearing sheds.

14.2. Rearing Practices

Rearers use lime powder during rainy and winter seasons. Some farmers use formalin chaff in winter, after bed cleaning. The use of lime powder, formalin and bleaching powder in terms of quantity and frequency is inadequate.

At present formalin is made available at the TSC headquarters and other inputs have to be procured by farmers from private traders. They are not purchased from these shops, as they report that it is of inferior quality and not effective, even if they are used. Therefore, they are seldom purchased and used. Use of RKO powder is not popular among rearers. Farmers who use formalin and

Farmers use uzi nets (some use it in two folds), but still they are not able to arrest the attack of uzi fly. They report that they lose about 3-4 kgs of cocoons in each rearing.

Majority of the rearers hire mountages. Only two or three rearers in the studied villages are owning mountages and they hire it out to other rearers on hire basis. Sometimes they are hired from neighbouring villages. During the period of intensive sericulture activity, there is shortage of mountage. During such periods, rearers are not able to give adequate cocoon spacing. This affects the quality of cocoons. Our observation is the number of mountages available in the seed villages are not sufficient to meet the needs of rearers. According to the rearers, the investment on mountages is not a priority as they find its use only during the spinning stage.

14.3 Extension

Rearers in the seed area do admit and appreciate the efforts of the extension staff and services in changing the farmers' practices. They identify such changes that have taken place in the areas like importance to be given for hygiene and environment, disinfection methods, spacing of worms, using own trays etc.

Nearly ninety percent of the rearers in the study area are aware of the visits of extension staff and the advise given on garden maintenance, use of farm yard manure and fertilizers, disinfection, rearing practices etc. But the same group

personnel suggest and the field problems. The perceptions regarding the adoption/non-adoption of practices as expressed by rearers suggest that they are recommended without taking into account the field constraints. In brief, the non-availability of farm yard manure, the quality of disinfectants purchased from private traders and its efficacy should be considered. The importance of using inputs like RKO, bleaching powder, use of adequate mountages etc., have to be given importance in the extension messages. Wherever it is possible to suggest alternatives for eg. substitutes for farm yard manure for garden maintenance for production of quality leaf, should be included in the package of practices recommended. Efforts should also be made in upgrading the management skill of the seed rearer to ensure quality and quantity of seed cocoons.

Field days (Farmers' meet) are organised in the seed villages. On such occasions the Assistant Director, Inspector of Sericulture along with the JIS, participate. Such group meetings, cover topics on garden management, silkworm rearing practices etc.

Women from rearers' households have attended training programmes conducted by the DOS. They are aware of the importance of the use of FYM, bed cleaning, use of disinfectants like lime powder, and bleaching powder. They are able to identify ripened worms, mounting, harvesting, sorting of cocoons. However, it was observed that the majority of the trained women are pursuing the menfolks to use these materials like RKO, lime powder, bleaching powder but the menfolks are not convinced of their use, therefore they are not

The extension staff in the seed area are all male members. They are acquainted with the sericulturist households. It was observed that the extension staff gives technical advice to these women sericulturists, use of lime powder, spacing of worms and providing aeration etc. However there is some hesitation among the extension staff to visit the rearing place (part of dwelling house) and communicate with these women in the absence of men.

The sericulturists in the seed area villages prefer to rear only local race silkworms. They consider themselves as "average farmers" and cannot afford to have improved level of production infrastructure. According to them the rearing of local race silkworm has one to one relationship with the mulberry variety, cultivation practices, rearing infrastructure and rearing practices to be followed. The mulberry variety grown is in conformity with the available resources of the region. They express that the local race is a hardy race and is best suited for the local mulberry variety grown.

Many seed rearers, feel the adequacy of available family labour quantity of leaf production on a plot of 0.70 acres to rear 100-150 layings per batch. This conforms to the restriction placed on the scale of brushing which is limited to 100-150 per batch.

Regarding the practices recommended by the extension and its adoption, one can find the adoption of practices varies from one group of rearers to another group, depending on their perceptions, resources and expectations.

that a large proportion (seventy seven percent) of respondents express that the adoption of practices is not practicable in the existing farm situations. Another sixty eight percent express that the advises given by the extension staff is not in relation to their experiences, and hence not adoptable. Another fifty seven percent express that such practices are not economically viable and are not necessary for adoption . While discussing with the group of rearers one has to encounter questions relating to:

* **support price of seed cocoons being low,**
* **increased cost of inputs,**
* **free supply of materials like formalin, bleaching powder,**
* **alternate suggestions, for improving their yield.**

15. Rearers Performance

The analysis of rearing data for the period April-December 1995 from the 84 sericulturists accounted for 253 rearings and have brushed 33,277 disease free layings. The average in-take per rearer household is 396 layings during the nine months period and a quantity of 132 layings are brushed per rearing. The cocoon production per rearer is about 80.59 kgs.

The average cocoon yield per 100 dfls during the month of April 1995 was 27.27 Kgs, which was highest, and the lowest cocoon yield of 17.68 kgs per 100 dfls was in the month of August 1995. The overall average per 100 dfls

The average number of rearings was 3 per household, except in the case of marginal, who accounted for less than 3 rearings per household. Sericulturists from landless and marginal category account for 20 percent of the total seed cocoon production, small farmers 22.6 percent, the medium category farmers account for 30.8 percent, while 26.4 percent of production came from large farmers. The average yield obtained by the large farmer category was 21.62 kgs/100 dfls which was highest, and the medium farmers obtained an yield which was the same as that of large farmers. In case of landless, the yield was 18.60 kgs/100 dfls which was the lowest and same as that of small group. Marginal category of farmers have obtained an yield of 19.72 kgs/100 dfls.

The analysis of 253 rearing results indicate that 59 or 23 percent of rearings have yielded less than 15 kgs, the average being 11.00 kgs/100 dfls. There are 125 or 49 percent of rearings fall in the yield range of 15 - 25 kgs; and 69 or 27 percent of rearings are in the yield range of 25.00 kgs and above. The distribution suggests that more often the rearing results are in the range of 15-25 kgs per 100 dfls.

As much as 39 percent of total seed cocoon production is contributed by 50 per cent of rearers, whereas about 35 percent of production is contributed by 29 percent of rearers and the rest 26 percent of production is from 21 per cent of rearers. The average yield of cocoon by these three groups are 16.54 kgs. 21.84 kgs. and 27.47 kgs. per 100 dfls respectively.

In terms of intake of layings 50 percent of rearers account for 48 percent of

percent of layings are reared by 21 per cent of rearers (26 percent of cocoon production).

In other words, higher proportion of cocoon production is contributed by large number of rearers at a low yield rate. Further the identification of cases/groups for low yield and causes there of enable to take appropriate measures. This would rectify the yield gap which will narrow the performance level of rearers.

15.1. Yield

If we take the individual rearer, the yield rates obtained in the different rearings are not uniform. Each rearer's performance exhibits a mixed pattern, sometimes low, medium or high yields. On the basis of the overall average yield obtained, we have grouped the 84 seed rearers as below:

Yield range Kgs/100dfls	No. of rearers	Avg yield Kgs/100dfls	Level of performance
Upto 20	42	16.54	Low(Below avg.)
20 + 25	42	23.92	Above average
	Average	20.34	

There are 42 (50%) rearers who fall within the low performance group.

Low Performance Group

The rearers from low performance group have not attended to the proper maintenance of garden in terms of inputs application (inadequate quantity of farm yard manure, chemical fertilisers...) and not attending to inter cultivation practices. This has resulted in poor quality and low quantity of leaf yield.

The data on silkworm rearing practices from this group indicate that the rearings are conducted in places with inadequate ventilation etc,. The rearers have not used inputs for controlling diseases (use of disinfectants like formalin chaff, RKO powder) (81.0%). The rearers have also experienced the shortage of leaf, inadequate mountages all contributing to low yield (50%). It should be noted that 50 percent of the respondents are not directly involved in rearing activity and management.

High Performance Group

The high performance group take care of items like a) leaf quality and quantity, b) adequate equipments, c) disease control measures, d) providing required rearing environment, etc,. Above all their involvement in the production activity were of high order. There was good response and cooperation to the extension support.

16. Cost and Returns

We have estimated the cost of production of seed cocoons, which include (1) maintenance of mulberry garden,and costs incurred on silkworm rearing

While estimating the cost, we have not included rent or rental value of land, interest on fixed working capital,depreciation cost on equipments etc.

16.1. Cost of production per Kg of seed cocoon - Local Race

The gross cost per Kg of seed cocoon production works out to Rs.93.01 and at the seed cocoon price of Rs.120.00 per kg., the average net return realised is Rs.10.66. The gross cost/gross returns ratio is as high as 0.90. The bulk of the gross cost is shared by labour cost of silkworm rearing (56.3%), mulberry leaf (14.6%), and disease free layings (6.3%).

In the seed cocoon production activity, the component of labour force is mainly from family members. The proportion of family labour cost to the total labour cost is about 78.2%. **if we exclude the imputed value of family labour, the cost of production per Kg works out to Rs.44.82. The rearer gets a net return of Rs.75.18 for one Kg of seed cocoon production.**

16.2. Cost of Rearing 100 dfls

The cost of rearing 100 dfls works out to Rs.2369.32, and the average yield of cocoon production is 21.67 kgs. At the present seed cocoon rate of Rs.120/- per kg, the rearer realises a net return of Rs.231.08. When we exclude the imputed value of family labour from gross cost, and then the net returns works out to Rs.1629.09. For rearing 100 dfls, the contribution of family labour is 57.21 person days (35.99 male, 21.22 female). The net returns to family labour

16.3. Income per Household

The average size of mulberry garden is 0.70 acres, and about 100-120 disease free layings are reared per batch. In an year, the rearer takes 400-450 layings in 4 batches. The net return obtained per household per annum for rearing 450 dfls is Rs.1040.45 (which includes imputed value of family labour). When the imputed value of family labour is excluded from the cost the net return is Rs.7,332 per annum.

The growing of mulberry and silkworm rearing is only one crop enterprise, comparably which has provided a reasonable income to the sericulturists. There are no other alternative crop enterprise which would give such an income, as well provide employment to family members.

16.4 Local Race vis-a-vis Cross Breed Silkworm Rearing

The analysis of cost and returns collected from the 30 sericulturists from the study area who are rearing cross breed silkworms (April - December 1995) are as follows:

- The gross cost incurred for the production of **one kg of CB cocoons**, works out to Rs.86.30. The average price for CB cocoons (Government cocoon market, Hosur - April - December 1995) was Rs.98.25. At this rate, the rearer realises a net return of Rs.11.35 per kg of CB cocoon produced. If we exclude the

returns, based on this gross cost works out to Rs.42.47 per kg of cocoon produced.

- The gross cost (including the imputed value of family labour) for rearing 100 dfls works out to Rs.2734.11. The average yield of cocoon production is 31.68 kgs per 100 dfls. At the market price of Rs.98.25 (Government Market, Hosur), the gross returns realised by a rearer works out to Rs.3112.56.
- The average net returns realised by a rearer works out to Rs.378.45 per 100 dfls. This is based on when the gross cost includes the imputed value of family labour. When this component is excluded from the gross cost, the net return works out to Rs.1345.37.
- The net return realised by a seed rearer works out to Rs.1,190/- per acre as compared to Rs.1,699/- per acre in case of CB rearing. When the imputed value of family labour is excluded from the gross cost, the net return works out to Rs.8,379/- for Local Race and Rs.6,039/- for CB rearing. This suggests that the sericulturists in this area have advantage as a "seed rearer", in terms of providing employment to family members as well as realising a reasonable level of net income.

17. Seed Cocoon Price and Incentives

Seed rearers are demanding higher price for cocoons. They compare themselves with the sericulturists of Karnataka Seed Area and demand free

Any increase in the subsidies and providing free services will make the farmer more `dependent'. But, as seed grower, the possibility of giving some free services/inputs could be considered. The seed rearers may be charged some "service charges" and the amount collected, be utilised for providing services to the seed rearers. Such funds, can be treated as "revolving fund" and the officer incharge of the seed area may be allowed to operate this fund. Strengthening of services in the seed area, will help in improving the yield level of individual seed rearers as well add to the cocoon production.

We have identified a group of rearers (low performance), where there is scope for improving their yield levels. Efforts, in this direction will help, those rearers, to add to their production, which will add to the incremental income to the household.

Production incentives for those rearers, who improve the "yield levels", may be considered. Such incentives, may help the rearer, in offsetting the additional cost incurred and add to his income and increase the cocoon production.

18. Credit - "tie up-recovery"

Many of the seed rearers have availed sericulture credit. Payment to rearers are made through cheques drawn on the local bank branch at Denkanikotai. While making payments the banks collect the instalment amount due towards the loan from the rearer who has availed such credits for sericulture activity. This informal tie-up has helped the credit recovery from the beneficiaries.

19. SUGGESTIONS:

1. Improved practices advocated by the extension should include alternatives or substitutes to meet the inadequacy of essential inputs (for eg. Substitutes for FYM....).

2. The mulberry plots in the seed area-needs soil testing. Use of fertilizers, recommendation of particular dosage etc, should be followed with soil testing analysis.

3. Package of practices have to be made area specific (seed area vis-a-vis commercial area) so that farmers recognise the relevance of the improved practices. Besides, a greater consideration should be given to the farmers' resources and concerns at the field level.

4. There is a need for specific training to extension staff to tackle the problem of seed growers. He needs adequate reorientation training applicable to seed area.

5. Seed area villages, are more homogeneous both in terms of production conditions, as well as social characteristics, there is more scope for effective performance. A "model seed village" programme may be initiated by giving intensive extension support. A small demonstration farm-cum-rearing centre may be established in this model village which can function as cocoon production and extension centre in the village.

6. As the area is compact, the female extension staff may be appointed to look into the needs of women sericulturists.

7. The farmers training programme should include "landless people" (wage labourers) who can be imparted with rearing skills. These trained labourers would then be able to work either as sericultural workers for the owners of mulberry garden, or can take up rearing of silkworms as `share cropper'.

8. Farmers should be given proper orientation training such that they realise and appreciate the importance of ventilation, leaf quality, use of disinfectants (more as a preventive measure of diseases). In all extension programmes, the unsuccessful farmers who continuously get poor yields, should also be involved.

9. In each cluster of villages, regular group discussion should be organised by the extension staff, where the experience of all farmers could be shared among other sections of the farmers. The Junior Inspector of Sericulture should try to locate the reasons for the success/ failures of the farmers during the previous crop in the same village, and use these cases as illustrations during discussions. This method would prove to be highly effective for all the farmers.

10. Pamphlets, posters depicting the seed area activities (mulberry cultivation, silkworm rearing practices), linkages with grainages

Film shows, TV, specific to seed area should become major vehicle of communication.

11. As an incentive to the sericulturists in the seed area disinfection services, should be provided by the DOS. Sericulturists expect some free services, as a `seed rearer'. DOS, may consider for providing `free' disinfection services.

12. The existing van facilities provided for lifting of seed cocoons from the villages should be ensured. In addition to the collection van charges, `service charges' may be collected from the seed rearer. The amount thus collected should be utilised for providing services to the seed area villages.

13. Separate sales counter (at the TSC), with all sericultural inputs, should be set up.

14. All seed rearers should be compulsorily made to purchase at least a minimum of 20 mountages. The cost on this may be given as loan through banks, which may be recovered from the value from the sale of cocoons. The recovery can be done in installments.

SILK YARN MARKET : A CASE STUDY IN TAMIL NADU

V.Vijayalakshmi and S. Anil Kumar

INTRODUCTION

The present study looks into the interlinkages in the silk yarn market which is an interface between the cocoon and fabric production. The price structure and the trend in the cocoon market is related to the silk yarn market. The silk yarn market which comes under the purview of Department of Sericulture is studied from two perspectives, i.e., Organised and Unorganised. The Organised fold covers the Government Anna Silk Exchange, TANSILK, Silk Weavers Cooperative Societies and public sector banks. The Unorganised fold includes the master producers, zari suppliers, independent weavers, wage workers, private money lenders (pawn brokers) and silk yarn traders. The distinguishing feature of two sectors is that the former as a government body works on the formal relation according to the norms and regulations formulated by the government of Tamil Nadu. The latter works at an informal level based on the personal relations. Trust and mutual understanding that played an important role contributing to the domination of the unorganised sector over the organised one. Though Tamil Nadu stands next to Karnataka in sericulture, it depends on the latter for its yarn requirement.

The consumers of the silk yarn can be classified in to different categories depending upon their mode of yarn transaction and Organisational affiliation. Often the person who buys the yarn may not be the person who actually consumes or use the product. Thus we have primary consumers, who purchased yarn for their own use and secondary consumers, who traded with the yarn purchased. Similarly Consumers can

Each consumer's perception for the choice of raw materials are different and unique. An understanding of these perceptions and preferences help the suppliers (i.e. Department of Sericulture) in providing the reasons for the uniqueness and differentiality in choice. This choice the character to different brand names in Tamil Nadu viz., Kanchipuram, Kumbakonam, Arni, and Rasipuram . The quality of weaving, the proportional weight of warps and wefts,traditional motifs and rich zari works makes the Kanchipuram sarees to differ from other areas. Kanchipuram sarees are known for their rich intricate designs selected from the temples of Tamil Nadu. Usually the Kanchipuram saree weighs 650 grams and measures 5.5 mts to 6.5 mts in length.

Thus the study with its frame work tries to unfold the secrecy of the unorganised sector thus aiming at the regulation of the silk yarn market, by the Department of Sericulture .

OBJECTIVES

With the above issues in focus, the objectives of the present study are:

1. To understand the organised and unorganised sectors of the silk yarn market.
2. To analyse the Credit Structure prevalent in the unorganised sector of the silk yarn market.
3. To examine the role of cooperatives in strengthening the organised sector.
4. To study the consumer perceptions and preferences.

METHODOLOGY

Kanchipuram in Chengalput district of Tamil Nadu is synonymous for the traditional handloom silk sarees. Since generations Kanchipuram, Arni, Rasipuram and Salem have been producing silk fabrics known world wide. But, Kanchipuram has been selected for the present study for the following reasons. viz., 1. It is the biggest consumer among the production centres in Tamil Nadu. 2. With the very aim to unfold the various issues related to the conspicuously dominating unorganised sector in Kanchipuram. 3. The functioning bodies of organised sector of silk yarn market, the Government Anna Silk Exchange is located in Kanchipuram.

The study considers Kanchipuram as a production centre rather than a taluk or division, as the fabric is produced in and around the town within a radius of about 25 KMs. The aim of the study was to understand *inter alia* the sections of consumers, the channels of silk yarn, the network prevalent in the unorganised sector and the role of Silk Weavers Cooperative Societies in strengthening the organised sector. To fulfil the above aim we chose the weaving enterprises of different capacities i.e. master producers, traders of silk yarn (both retailers and wholesalers) Twisters and active reelers and ex-reeler members of ASE. The case study of the cooperative sector in Kanchipuram was also carried out to have a better understanding of their role in strengthening the organised sector.

For analytical purposes the weaving community in Kanchipuram is divided

the independent weavers. And two, Cooperative sector which includes members of the Silk Weavers Cooperative Societies.

The silk yarn market has components of both organised sector and unorganised sector. The organised sector comprises the Anna Silk Exchange (ASE), and Tamil Nadu Cooperative Silk Producers Federation Ltd (TANSILK). The unorganised sector on the other hand consists of wholesale traders of Bangalore, retailers of Kanchipuram, and reelers of Tamil Nadu and Karnataka.

Weaving Sector :

The enterprises in the weaving sector are distinguished on the basis of the number of looms owned and the quantity of silk consumed. There are approximately 600 Master Producers in Kanchipuram out of which 45 were randomly selected to be included in the study. It was difficult to estimate the total number of independent weavers. However 45 Independent Weavers were chosen for the study. Fifty wage workers under the master producers were interviewed to know their perceptions about the weaving industry. From the unorganised sector of the silk yarn market, fifteen wholesale dealers were included to get their views on the consumers and the market situation. The wholesalers are traders in Bangalore who supplied silk yarn to master producers and retailers in Kanchipuram. Out of over fifty retailers 15 were included in the study. Similarly, 75 weavers from the cooperatives were interviewed to get their views on cooperatives and it's membership. Care was taken to include the active as well as idle members. As the participation of the

into. About 20 active reeler members and 10 ex-reeler members(but functioning) of ASE were included.The different sections of the weaving sector and silk yarn market included in the study are shown in Table-1.

TABLE - 1. SAMPLE OF THE STUDY

Sl. No.	CATEGORY	SAMP
1.	Master producers	45
2.	Independent weavers	45
3.	Wage workers (under Master Producers)	50
4.	Cooperative Weavers	75
5.	Retail traders	15
6.	Wholesale traders	15
7.	Wholesale Traders of Silk Yarn	15
8.	Reelers of ASE (both active and ex-members)	20

Secondary data pertaining to organised sector i.e ASE and TANSILK was also procured.

The unit of study in the case of master producers is the enterprise. The owner of the enterprise was interviewed in each case. However, in the case of weavers who are self financing (i.e. independent weavers), those affiliated to the cooperatives and wage workers under master producer, the household was considered the unit of study and all the members involved in the weaving activity were interviewed to elicit information. Weavers of different loom

The variables chosen for the study are guided by the objectives of the study. It is not only aimed to understand the various view points but also to analyse the linkages between different sections of the silk yarn market and its consumers (see fig.1).

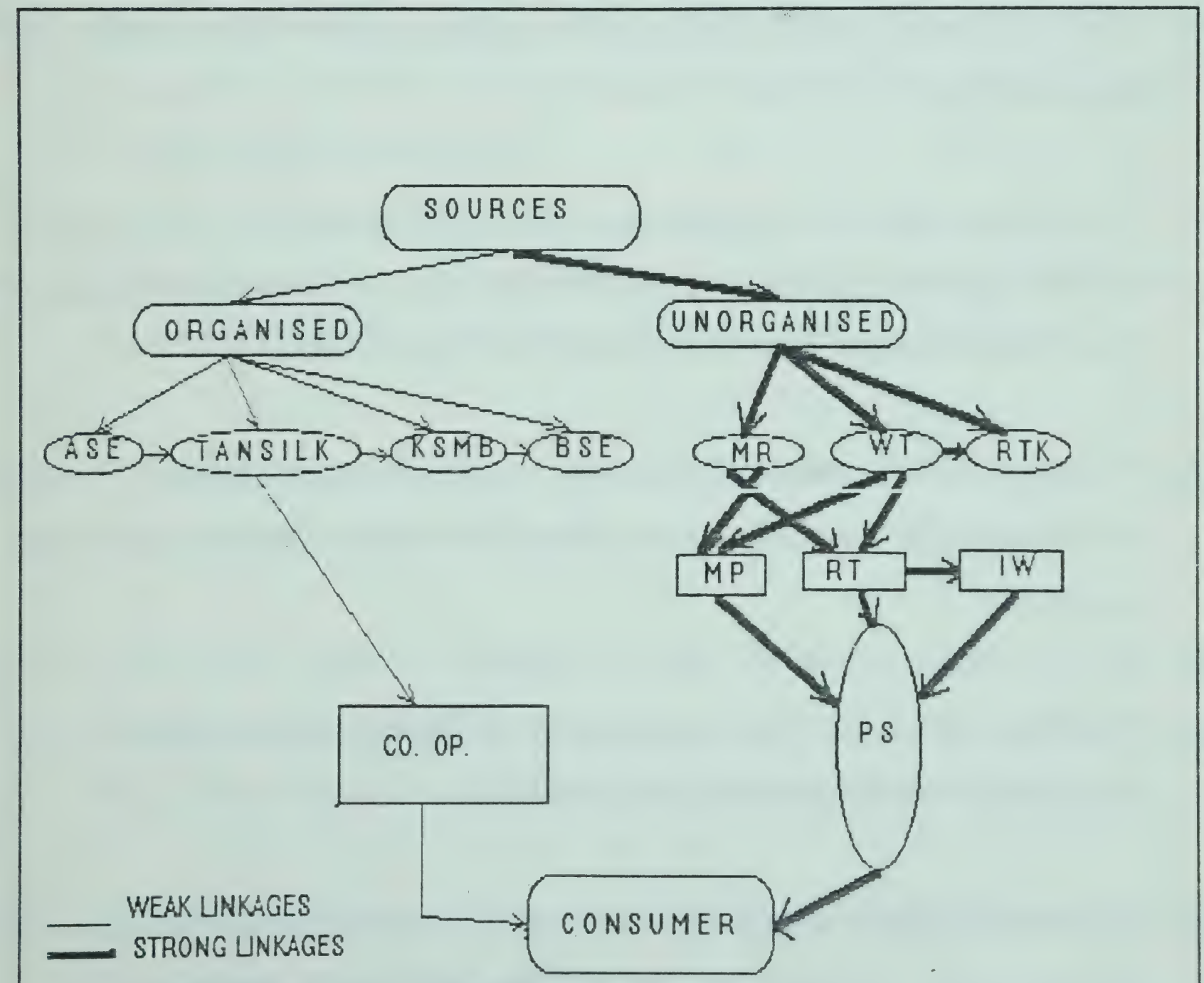

FIG.1 : INTERLINKAGES IN SILK YARN MARKET

FINDINGS/OBSERVATIONS

1.TANSILK

1.1 The communication between the Directorate of Handlooms and Textiles and the Department of Sericulture is not at the desired level.

1.2 TANSILK supplies the silk in bulk quantity only to it's members i.e., cooperatives

1.3 Though the official formalities was often cited as the discouraging factor in the organised sector many members were withdrawing because of the income tax problem which they may have to face.

1.4 TANSILK lacks in liquidity of money. At present TANSILK is having a share of 3.4 crores and transacting 17 times of it's share on Bank guarantee.

1.5 TANSILK is capable of meeting the present demand, but it is not equipped to cater the increasing demand.

1.6 There is a chain of demand and supply between Government Anna Silk Exchange - TANSILK - SWCS - Weaver.

1.7 Selling price of ready silk is more in TANSILK compared to it's local competitors.

1.9 Many consumers expressed that the Silk exchange received by and large the local silk of Tamil Nadu which they think to be of inferior quality.

2. ANNA SILK EXCHANGE,KANCHIPURAM

2.1 Basin silk arrival is more compared to the charakha. On an average the price at the Anna Silk Exchange is higher by Rs.100/- compared to Bangalore Silk Exchange.

2.2 There are reportings of quality cocoons outflow from Tamil Nadu to Karnataka cocoon markets because of the inadequate price.

2.3 There is a considerable decrease in the participation of reelers in Silk Exchange leading to increased unorganized operation.

2.4 The floor price of bidding in ASE is fixed based on the BSE communication for 16/18 deniers. However ASE receives 22/24 deniers silk. According to the SCTH reports the average denier is 28.

2.5 Though there are quality measures in terms of uniformity and deniers, the reelers rarely produced the finer deniers.

2.6 There are some organizational lacunae in ASE which are helping the **fake reelers** and the inter-state silk transactions. The **fake reelers** participating in ASE are of two types viz., **(i)** Those who run their units,

2.7 Many reelers expressed that there is a inter-state recycling of silk yarn in ASE. According to the reelers the process of recycling is a complex one involving some **fake reelers**, twisters and someauthorities. "**GOBBARA** ", supposed to be the inferior quality silk in terms of thicker deniers in Karnataka is being transported to Kanchipuram by night services enabling the traders to reach Kanchipuram around 4.30 a.m. on the day of auction (alternative days of the week). They stay in their regular rooms in Pallavan lodge in the Gandhi Street. The twister members approach the traders in the morning. After arriving at a mutually beneficial `business' agreement, the twisters pass-on the **lot** to their regular reelers (who are fake reelers) and send the **lot** to ASE for auction. There they have got some **`adjustment'** with the customary officials who pass-on the **lot** without any trouble. In the auction the **twister** will be participating along with other twister members. As the bidding starts for that **lot** the **twister** creates an artificial competition and sees that the **lot** will be fetching a higher bid/price. If the lot is not purchased by the other twister members, the **twister** himself will purchase the lot and TANSILK will be paying for it's twister member. It is estimated that there is a profit of Rs.100/KG which will be distributed according to the degree of involvement. But, the **twister** has to set apart certain per cent from this transaction to the SWCS authorities who will be the consumer members of TANSILK lest the **lot** will be rejected on some grounds.

2.8 Tamil Nadu reelers openly criticized that one can thrive in the ASE only

2.9 Competitive bidding is not operating in ASE. Some pivot persons are operating monopoly.

2.10 Most of the beneficiaries (17 out of 20 reelers) expressed their dissatisfaction about the price flexibility of the silk yarn in ASE.

2.11 Experienced reelers are avoiding the finer denier manufacturing because of the insufficient demand, psychological tension due flexibility of yarn price, increase of winding breaks because of the thinner filaments, wastage, additional labour, fueling cost etc,.

2.12 Certain skilled reelers are maintaining the consignment of denier requirements of private twisters, Silk Weaving Cooperative Societies and Sarvodaya Sanghs which are rarely accounted for the annual production of silk yarn.

2.13 The reelers from the southern districts of Tamil Nadu reported about the inadequate supply of DFLs which is responsible for insufficient cocoon supply.

2.14 Dindigul and Tirunelveli districts reelers reported about the lack of Extension Services, as some of the Extension workers are working as agents for Peerless Insurance Co. and Spin Guard Financial Services.

2.15 There is a communication gap between the Silk Conditioning and

2.16 Some progressive reelers were of the opinion that most of the fund of NSP had been used for infrastructural facilities like building constructions, but not for the benefit of the farmers/ sericulturists who are the pivots in quality cocoon production. DOS had set-up so many infrastructures to measure the quality of cocoons and quality of yarn, but least importance is given to the quality of cocoon production, which was supposed to be the priority.

2.17 Though 67 TSCs have been established under NSP, Technical Services hardly reached the field.

2.18 ASE members (both buyers and sellers)were of the opinion that the SCTH's test results are not tallying with that of the indigenous **" Touch and feel "** method.

2.19 Because of the manpower shortage and other problems, SCTH tests an average of 10 lots on auction days against their target of 20 samples. SCTH is in need of a generator.

2.20 Some reelers are refusing silk testing because of the considerable reduction in bidding based on the test results.

2.21 The consumers are of the opinion that the tested lots are not fetching good rates which is responsible for thicker deniers.

3. Silk Weavers Co-operative Societies

3.1 The Co-operative membership is unlimited, even exceeding 2000.

3.2 Some Co-op are running under loss. The failure may be attributed to the increasing idle membership and lack of effective management. It is learnt that the Board of elected members of Co-operatives have been dissolved by the present government and Special Officers (deputed from the Directorate of Handlooms and Textiles) are heading the cooperatives.

3.3 Most of the idle members are drained by master producers with hefty loom advances ranging from Rs.4,000 to Rs.40,000.

3.4 Each of the Co-Operatives have a basic common ground which motivated them to form the organization.

Religious -Sri Jayendrar SWCS

Political -Rajiv Gandhi SWCS

J Jayalalitha SWCS

Kalaignar Karunanithi SWCS

Party politics has a direct contact in the cooperatives by which each cooperative can be grouped/named to have a political affiliation.

3.5 The membership is restricted to influential persons and not for the actual weavers, but, for the loom owners which again creates `societal'

3.6 The present system of operation of Co-operatives needs two guarantors for getting raw materials for weaving in the case of which, the failure of even one among them will create three idle memberships.

3.7 In the recent years, Income Tax Department charged the weavers by calculating their wages and bonus from the records of cooperative societies without taking into account the labour involved and the time taken, which is a strong reason for sick cooperative societies.

3.8 Last but most important is the internal bribing, is affecting the organised sector. This includes both in the yarn market and cooperative sector which needs prime attention.

4.MASTER PRODUCERS

4.1 Master producers with the their un-organized sector are overpowering the organized sector.

4.2 There is an increase in the number of Master producers at a faster rate during the last two years.

4.3 To become a member in the Master Weavers' Association there are certain rules and regulations. Every member should voluntarily contribute Rs.60/- towards temple renovation fund of the Association, which will be used for the renovation work and annual fair of the three

4.4 Most of the Master Producers do not want to get registered in Master Weavers' Association because,

(i) Tax problem - by calculating ones contribution towards the temple renovation fund one can estimate the transactions/business of that member.

(ii) Some Master Producers do not want to expose themselves and take risk viz,, tax problem, labour problem, etc,.

4.5 Almost all Master producers are concealing their loom details and transactions. Most of them are introducing themselves as engaged in **" purchase and sales "**, thus concealing the economics involved in the manufacturing of fabrics. It is mainly because of the tax problems and dominating child labour.

5.WEAVERS

5.1 Most of the skilled weavers belong to the un-organised sector and are working for the master producers.

5.2 Based on the looms the weavers may be classified as **i)** those owning looms in their own house, **ii)** those owning looms in rented house, **iii)** those working on rented looms in rented house - wage labourer.

5.3 Irrespective of the category, every weaver demands loom advance to the maximum of Rs.15,000/- per loom creating a bondage to work for

amount will be decided by the master producers depending upon the demand for the work and consignment, the number of looms owned by the weaver, the weaving potential (in terms skill, weaving sons and the managerial capacity of the weaver), assets and repaying capacity.

6.INDEPENDENT WEAVERS

6.1 Most of the Independent Weavers are working as agents for Master Producers.

6.2 Almost all the Independent Weavers are procuring the raw materials from Karnataka silk traders and retail traders in Kanchipuram in small quantity.

6.3 There is a concept of "**Concealed labour**" operating in the weaving sector of Kanchipuram wherein Independent Weavers occupy the buffer zone. As the Independent Weavers are the ex-cooperative weavers they are holding an idle membership but working with their own capital.

6.4 Most of the Independent Weavers have 2-3 idle cooperative membership which they surrendered as they were not satisfied with the cooperatives. Reasons often cited are: the silk in Silk Weavers Co-operative Society (SWCS) is of low quality; there is limited scope for getting reward for honest work; there is partially to issue the designs fetching comparatively better wages; weavers have no voice and choice

percentage of wage for a particular design; and lastly the problem of coming under income tax net.

6.5 Independent Weavers are happy to identify themselves through proper license/identity cards, which will enable them to procure adequate raw materials and minimize complications.

6.6 Independent Weavers are not participating in the Anna Silk Exchange to procure the silk because **(a)** TANSILK monopolizes the bidding operation in ASE **(b)** Karnataka silk traders are supplying the ready silk at a cheaper rate on 3 months credit basis on an interest of Rs.50 to Rs.200 depending upon their understanding and relation. **(c)** KSMB has recently started to cater to the retail need of the Independent Weavers. **(d)** Some Karnataka twisters are staying in lodges and supplying yarn to individual customers at their door step. **(e)** Some independent weavers are getting their raw materials by pledging and mortgaging their house, land, jewels and other property. The pawn brokers are supplying the dyed silk and twisted silk on credit at the rate of 10-25 per cent per month

6.7 Independent weavers are facing the problem of marketing. They are trying various sources to market the fabric. **i)** few try to attract the wholesale purchasers at their door step **ii)** while others are obtaining the assistance and design from the show rooms and weaving for them. **iii)** few of them are approaching the silk houses in various places **iv)**

SUGGESTIONS/RECOMMENDATIONS

1. TANSILK

1.1 There is a mediation required between the Directorate of Handlooms and Textiles and the Department of Sericulture, as the latter happens to be the supplier to the former. The liasoning between the duo is important to know the consumers taste in the selection of raw material in terms of quality and quantity, so that the latter can change the strategies according to the changing market scenario.

1.2 The activities of TANSILK is limited. Though it works as a service cooperative, its area and activities need to be expanded to cater to the increasing demand.

1.3 The government's policy of income tax implementation is the main reason for avoiding the purchase from the government outlets. Hence this should be worked out very carefully so as to bring back the lost confidence of the weavers and master producers. Government has to workout a policy to implement sales tax to all the silk traders (both wholesale and retail). The government outlets and cooperatives should be exempted from all tax. But before implementation it is advisable to consult the experts and Economists.

1.4 It is one of the hindering factors that ASE has to operate with TANSILK through the Bank guarantee which intern delays the reelers payment.

share capital according to the increased share. Another alternative is to approach the NABARD or NCDC.

1.5 So far TANSILK has not worked out to open a retail sales counter to compete with the local counter parts and to expand the scope. It is suggestible to have it separately and given wider publicity.

1.6 A strict regulation should be followed to give importance to the quality of silk. Authorities at government reeling and twisting units need to be warned about stained silk.

1.7 KSMB the immediate competitor of TANSILK is profit oriented. It is observed that KSMB has sold the same quality of silk at a higher rate when compared to an individual customer. It needs a high level intervention to develop and establish mutual understanding between these organizations. When the former is operating in the latter's state, a sufficient rebate should be worked out as TANSILK purchases in bulk quantity.

2. ANNA SILK EXCHANGE

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2.1 There is an urgent need for the DOS to look into the existing price structure of the cocoon and yarn market and regulate the price fluctuation by through "**price fixing**" mechanism to check the yarn infiltration and cocoon outflow.

2.2 There should be a minimum price difference for the charakha super fine charka and basin silk. There should be considerable rate difference of Rs.50/- per kg for finer deniers in the tested lots.

2.3 The ASE floor price fixing mechanism need to be rechecked as the communication of the BSE is for 16/18 deniers whereas the ASE receives 22/24 and coarse deniers which is an hindering factor for a skilled reeler because he has no scope to show his skill in reeling, but to follow others.

2.4 The organisational lacunae in the ASE need to be plugged. There should be a strict vigilance to check the interstate yarn transaction. DOS in a joining venture with the help of other authorities like revenue, tax and local police can initiate raid the illegal trading centres of interstate yarn transaction. The supervisory authorities in ASE, TANSILK and SWCS need to monitor their customary officials from involving any such illegal activities. The ASE officials should have a constant vigil on the cocoon entries and yarn transaction. The renditta need to be calculated and only genuine entries need to be encouraged, which needs the consideration of seasonal fluctuation of different areas. The reelers license and ASE passbook need to be duly attested across the photographs (both reeler's and agent's) partly overflowing and should have department seal. In any doubtful cases the ASE should immediately notify the concerned AD marking copies to the concerned RJD and DOS, Salem.

2.5 The reeling centres of Tamil Nadu should to be monitored by the DOS. The concerned ADS should send all the revised list of reeling devices from time to time. The personnel in the ASE should have the reelers list and their reeling capacity. So that, they can assess whether that particular reeler can reel that particular lot within that stipulated time.

2.6 ASE need to maintain area wise and reeler wise silk arrival per month. Then DOS can formulate and/or modify their regulation according to the priority.

3. SILK WEAVERS CO-OPERATIVE SOCIETIES

3.1 Quality and quantity go hand-in-hand only if both are carefully and proportionally limited. The increase is unlimited number of membership is affecting the system of operation. This can be overcome by limiting the membership. There should be more cooperatives at village level.

3.2 Master Producers are draining the Cooperative weavers, thus increasing the number of idle membership. Such membership should be canceled with a short notice and new members may be considered to fill the lacuna.

3.3 There is a hue and cry from the weavers that they were denied membership for unknown reasons. Such applications shall beperused for new membership.

3.4 It is advisable to conduct a survey/census to enlist the genuine and skilled weavers before providing new membership. The survey should be an elaborate one and should not be a politically based or motivated and biased one. The surveyor's interest should be carefully watched for issuing membership for influenced ones.

3.5 At present 50 per cent of the Kanchipuram weavers are spread over the villages. Then started, the co-operative membership was restricted to 7 KMs radius around Kanchipuram. But now this need to be amended and reconsidered to a minimum of 25 KMs radius to include the spread over looms in the villages.

3.6 While deciding the new membership preference should be given to household weavers with limited number of looms than a wage weaver working on a rented loom.

3.7 Separate Schemes should be charted to issue reimbursable short term loans to attract and include the wage earners. Separate Strategies should be worked out while considering the wage weavers and those working on rented looms, like establishing a few looms at a place and employing them.

3.8 The present trend of politically motivated SWCS should be effectively changed into Weavers Welfare cooperative Societies.

PROBLEMS AND PROSPECTS OF SILK YARN MARKET IN ANDHRA PRADESH

V. Vijayalakshmi and D.V. Sreenatha

INTRODUCTION

Silk yarn market is a crucial interface between cocoon and silk fabric production. The current recession in the organised sector of the silk yarn market in Andhra Pradesh is an indication of the weakening of the links between the various interrelating factors in weaving industry. The recession is marked by peculiar features in the production of the silk yarn, marketing, relationship with the unorganised sector of the market and the silk weavers cooperatives. To begin with there is perceptible incongruity in the estimates of cocoon production. This is because much of the cocoon is not transacted in the domestic cocoon markets. Similarly the silk yarn produced within the state is not sold in the silk exchange. The major portion of the silk yarn which is consumed in the traditional weaving centers is from the unorganised sector. There are various issues that need to be looked into. One, the organised sector is not able to restrict the outward flow of the cocoon. Two, it is not able to attract the reelers to sell their yarn through the silk exchange. And three, it does not have enough stocks to cater to the needs of the consumers. Given the situation, the organised sector depends on the unorganised sector of the Karnataka Market to meet its requirements. Because of this the silk yarn prices in the formal sector is very high which is a discouraging factor for the consumers depending on it. As a result the unorganised sector has flourished

The silk weavers cooperatives which are a sizeable number is not able to stabilize the position of the organised sector by consuming silk yarn from it for various reasons. Many of the silk weavers cooperatives do not fulfil the objectives of welfare of the weaver through cooperative weaving. Since they work as master traders having only marketing relationship with tMw weavers they are not able to create demand for silk yarn in the organised sector.

Given this backdrop the position of the organised sector is threatened by the unorganised sector. It now faces dual problems of competition from the unorganised sector and a set of operations that had dramatically turned cost-inefficient. Both these problems are reciprocal, wherein the absence of production and sale, the organised sector cannot function for long at the present rate and scale.

The formal sector which always faces pressure from the price fluctuation in the unorganised sector finds it difficult to cope with the existing situation in the yarn market. The developments in the organised sector of the yarn market are worthy of recall in this context. Until 1992 this sector enjoyed good position in the market. However, in mid 1992 when there was sudden fluctuation in the yarn prices it incurred heavy loses. The organised sector did not have any recourse to recover from the slump which was a consequence of the sharp fall in silk yarn prices. The impact is still visible and it has become difficult for the government to rectify the situation.

Before the government formulates any policies to revitalise the organised

prove beneficial to this sector, the underlying practice of the cooperatives also needs proper examination.

Objectives:

Considering the above issues the objectives of the present study are to,

* understand the organised and unorganised sector of the silk yarn market.
* identify the various trade links in the silk yarn market.
* examine the functioning of cooperatives and its role in strengthening the organised sector.
* study the problems and perceptions of different sections of the silk yarn market.
* examine the possible intervention required in policy and structure.

METHODOLOGY

Dharmavaram is a major silk weaving center in Ananthapur district of Andhra Pradesh. Famous for its silk sarees, Dharmavaram is one of the major consumers of silk yarn. To understand the dynamics of silk yarn market in Andhra Pradesh, we have chosen Dharmavaram as the area of study. There are approximately twenty thousand silk weaving looms in Dharmavaram and it has eighty four silk weavers' cooperative societies.

Various aspects pertaining to the silk yarn market are examined here. First, the structure of the silk yarn market is analysed, to have an understanding of the organised and unorganised sector of the market. The various networks in the non-organised sector is given attention so as to enable to develop

problems and perceptions of the different sections of the consumers and suppliers is examined to know their views on the silk yarn sources. The functioning of the silk weavers cooperative societies is looked into to ascertain its role in developing and strengthening the organised sector of the silk yarn market.

To fulfil the above purpose information pertaining to the functioning of SERIFED, and the other details regarding the cocoon production and silk yarn production were gathered. Fifty reelers from Kadiri, Dharmavaram and Hindupur were included in the study to understand the nature of their operations.

The unorganised sector comprised the reelers of Andhra Pradesh, the wholesale traders of Karnataka and retailers at Dharmavaram. Fifteen reelers, 25 wholesale traders, (15 in Bangalore, 10 in Dharmavaram) and 10 retailers were included in this study.

Weaving enterprises of different loom strength were studied. Sixty self financing weavers, 15 cooperative presidents, 6 master weavers and 25 retailers were interviewed to find out their perceptions about the silk yarn market, preferences and sources of yarn, Table 1. Thirteen members" of the cooperative, 15 wage labourers and fifteen master traders were interviewed to study the operations at different levels in the silk industry.

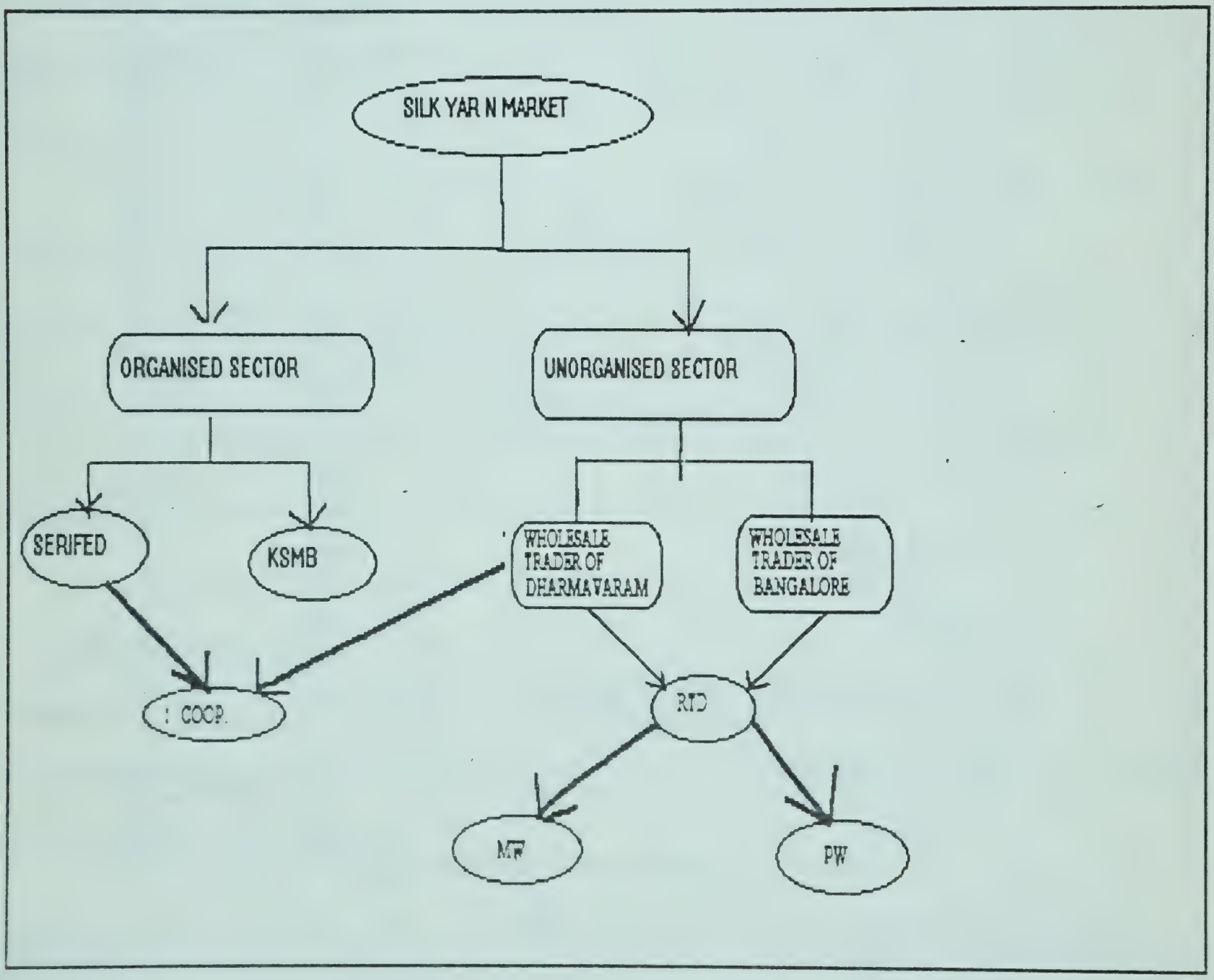
Table 1. The Study Sample

Sl.No.	Type of Weaver	No of families
01.	Private weavers	60
02.	Wage labourers	10
03.	Wage workers with master weavers	15
04.	Master weavers	06
05.	Presidents of cooperative society	15
06.	Retail Traders	25
07.	Wholesale Traders	25
08.	Reelers	20
09.	Cooperative Society Weavers	13
10.	Master Traders	15
	Total	179

The weaving enterprises were categorised on the basis of the existing production and marketing relationship. The self financing weavers purchased their own raw materials and owned the means of production. They have only marketing relationship with the fabric traders. The private weavers comprised the large section in Dharmavaram. In the wage worker category of weaving enterprise the master weaver or the cooperative presidents provide the raw material. The means of production was not owned by the weaver.

The unit of study in the case of the weaving enterprises was the household.

The relationship of these enterprises with different sectors of silk yarn market is presented in Fig. 1



OBSERVATIONS

COCOON MARKET

1. The reelers and farmers complained that the electronic weighing at the cocoon market in Dharmavaram was not functioning for three months (during the period when the study was conducted) and it was not rectified. The sellers and buyers feel that there was a difference in

2. Irregular payments to the farmers due to some departmental problems was reported. As a result many farmers did not transact in the cocoon market for 15 days.

3. The reelers from Karnataka were allowed to purchase from the cocoon markets of Dharmavaram and other parts of Andhra Pradesh. The Karnataka reelers offered better setter prices and purchased quality cocoon since they get good returns. However, the Andhra Pradesh reelers lost in the bidding and had to settle for lesser quality cocoons. Though this might help the farmers, it discourages the reelers from transacting at the government cocoon market.

REELERS

1. Quality cocoon was not always available to the reelers at the government cocoon markets for two reasons. One majority of the sericulturists did not transact business in the government cocoon market. And two, even when cocoons were available at Governemnt Cocoon Market the local reelers lost in the bidding with Karnataka reelers who offered better prices.

2. The reelers do not get proper returns at SERIFED as the prices quoted are often low. Since the pledging system has been withdrawn they do not have an alternative to wait till there is a rise in prices.

3. The incentive given by the department for producing good quality yarn

SERIFED. After exceeding the limit they transact business directly with the traders and/or master weavers

4. The government reeling units in Dharmavaram are not functioning and are in deplorable condition.

5. There is a considerable decrease in the oMwrations of the reelers in SERIFED.

6. One of the reasons for the low production level of the Andhra Pradesh reelers was inadequate power supply.

7. The reelers are not keen to produce finer denier silk because there is no local demand for quality silk yarn. They do not get adequate profit for reeling superior quality silk.

8. Training and Technical help for the reelers are very poor.

SERIFED

1. The demand situation in SERIFED is very low.

2. As supply position of silk yarn to SERIFED is poor purchases are made from Bangalore Silk Exchange and unorganised sector in Bangalore.

3. The prices paid to the reelers is much lower than what is paid in the

4. The silk yarn transacted is of poor quality. Much of the silk yarn transacted at Serifed is `Oil Mixed' variety and the weavers are not willing to buy it as the degumming loss will be more.

5. The varieties of silk yarn available at SERIFED is limited.

6. The selling price at SERIFED is higher than in the unorganised sector. The prices are higher because of the overhead costs.

7. There is no system where the reelers can pledge the yarn when prices are low. This is responsible for the `distress sale' of which many reelers often complained.

SILK WEAVERS COOPERATIVE SOCIETY (SWCS):

1. The by-laws of Silk Weavers Cooperative Soceities is not strictly followed by the SWCS of Dharmavaram.

2. The silk weavers cooperative societies in Dharmavaram have not been a total success. They are functioning as private enterprises of the cooperative presidents. The funds given to the cooperatives by the government and NABARD are used for their personal benefit. Not a single SWCS is involved in cooperative weaving.

3. The members on the records of SWCS are not given the funds and loans forwarded in their names. The profits of the cooperatives are not

4. The share capital to be invested by the members is not collected from them. The presidents paid the share capitals of all the members. The SWCS were not forthcoming with the membership particulars, addresses of the members, the working results, purchases and sales.

5. The SWCS are not functioning as production and marketing units of its members. They are functioning as the marketing outlets for the private weavers who are not the members of the cooperative.

6. There are approximately 8500 private weavers in Dharmavaram. Many of the private weavers want to be the members of the SWCs so that they will not have the problem of working capital and marketing the finished goods. But no genuine membership is entertained by the cooperatives.

7. Majority of the cooperatives do not have elected Boards.

UNORGANISED SECTOR

1. The wholesale dealers of Bangalore and Kanakapura supply three fourth of the requirements of the weaving sector in Dharmavaram.
2. The local reelers cater to 10 percent of the needs of the weaving sector.
3. The consumers have a choice of different qualities and types of silk yarn. The desired quantity of any silk type is supplied to them.
4. The prices are competitive compared to the organised sector.

CREDIT

1. The wholesale traders give a interest free credit of one week.
2. The credit period varies from 1 month to 3 months. Majority of the consumers availed only one month credit period as the interest rate will be high.
3. The interest charged is not fixed. It varied for different consumers. If the consumers made regular payments interest rate was slightly lower.
4. Credit sale was considered as one of the positive factor of the unorganised sector by majority of consumers.

SUGGESTIONS:

Regulating the outflow of cocoons

1. Enforce strict regulations on the outflow of cocoons.
2. Paying competitive prices to the farmers encourages them sell the cocoons in the Government Cocoon Market within the state.
3. Demand should be created for the cocoons by strengthening the reeling sector.

Reeling Sector

1. The government reeling units which are at present not functioning should be activated. In the absence of this possibility steps should be taken to lease it out to interested parties before it becomes obslete.
2. Reelers should be encouraged to produce quality yarn by paying them competitive prices.
3. `Pledging system' which enables the reelers to wait till they get

the prices are low. A Technical person should be made incharge for the proper quality evaluation of the silk yarn that is brought in.

4. Reelers cooperatives should be revilatised to enable the interested members to participate in cooperative reeling.
5. Reelers should be given adequate incentives to motivate them to trade through SERIFED.
6. Training and Extension should be given more attention. This will increase the productivity and the reeler will get proper returns for his investment.

SILK WEAVER COOPERATIVE SOCIETY (SWCS):

1. The SWCS in Dharmavaram are a failure inspite of having a cooperative subregistrar to look into its proper functioning. Therefore special officers from the Department should be put incharge for a few cooperatives each. These officers should be made answerable if any malfunctioning was reported about the cooperatives.
2. Thorough evaluation of all the members of the cooperatives should be carried out. Every member should be given a pass book and a identity card after verification. This will reduce the duplication of members and create a sense of identity among the member weavers of the cooperative.
3. The Department should conduct a week long awareness programme on the functioning and benefits of cooperative weaving. The weavers should be told their rights and responsibilities as cooperative members. An exhibition should be conducted on the cooperatives to create

4. A regulation should be brought in to make all the SWCs to purchase the silk yarn only from SERIFED. The support to cooperatives which deviates from this stand should be withdrawn.
5. Regular meetings with all the members at a time should be arranged by the Department. This will enable them to voice their opinion and may nurture the cooperative feeling.
6. To ensure that the members share capital is paid by the weaver himself, the procedure for filing papers for membership and paying the required amount should be carried out through a Bank.
7. The Department officials should verify participation of each and every member and take necessary steps to ensure that the profits are shared with them.
8. Elections for the Boards should be ensured and that at least 60 percent of the members participated.
9. It should be taken care that the members are not disqualified according to the wishes of the presidents unless there were proper reasons to do so.
10. The SWCS which showed marginal profits for over a period of time should be wound up.
11. Steps should be taken to settle the bills of SWCS by the APCO.

SERIFED

1. Serifed should pay competitive prices to the reelers to attract them to transact the yarn through the organised sector.
2. Quality standards should be maintained at SERIFED. `Oil mixed' yarn

3. As Serifed and the SWCS are under the Department of Sericulture, the total yarn requirement of SWCS should be catered only by SERIFED. This not only increases the sales at SERIFED but also stabilises its position to a considerable extent.

4. Awareness about the retail sales of SERIFED should be spread among the consumers.

ORGANISED AND UNORGANISED SECTORS OF SILK YARN MARKET IN KARNATAKA-SOME ISSUES

V. Vijayalakshmi and N.R. Manjula

INTRODUCTION

Karnataka the leading silk producing state in India with a annual production of over 8000 tonnes faces many problems in the marketing of silk yarn. Three fourth of the yarn the state produces is marketed in the unorganised sector despite the functioning of the Silk Exchange. Production and marketing are the two crucial factors in the silk yarn market did not get equal priority. In Karnataka though production received due attention, regulated marketing is not considered important. This is reflected in participation level of the reelers in the Silk Exchange is showing a downward trend. The silk yarn produced in the State meets the requirements of the handloom sector but not the power looms. The consumers of power looms in Karnataka preferred imported (or China silk) to the domestic silk because it is available in required quantity. Though Karnataka has a strong power loom sector which is expanding the state is not in a position to cater to its demand. The main consumers of the silk produced in the state are the different weaving centres across the country. To be more specific there is no link between the production and consumption sectors in the State. Added to it in the absence of understanding among the states on the marketing of the yarn through organised sector, the unorganised sector has become major trade channel for silk yarn in the State.

The problems of the organised sector of the silk yarn market in Karnataka has become increasingly complex due to the wide network of trade relations of the unorganised sector. There are various factors underlying the strong trade relationship in the unorganised sector that cannot be isolated viz. credit sale, unaccountability and competitive prices.

The policy interventions are not adequate to regulate the inconsistencies in the system. The regulatory mechanisms to maintain the policy intervention, are themselves becoming the elements of the organised market structure and adding to the complexity of dysfunction. This is mainly because the organised sector does not have proper mechanisms to recognise and compensate the efforts of the silk producers. Following from the above, the producer of yarn prefers to transact it in the unorganised sector were the prices are competitive.

Inspite of the market interventions from the government side the consumers are more satisfied with the performance of the unorganised sector. This is mainly due to varied preferences of the consumers whose demand ranged from high quality supplies to medium and low yarn qualities. The domestic handloom market which produces traditional heavy handloom fabric want yarn which suited their requirement. The interest of the large section of the handloom sector is not for the finer quality yarn. On the other hand we have the powerloom sector were the demand is more for silk yarn with attributes like uniformity in silk. The options of the consumers of yarn of different price levels is catered by the unorganised sector. The clandestine operation of silk yarn between the states is looked at as a normal operation. This vicious circle of the

of the role of government in the silk yarn market. Before the government defines its role it needs to be clear whether it is to limit its involvement to promotion and support or extend it to regulation.

The silk yarn market in Karnataka which is the backbone of the major weaving centres in the country is at a phase were reorientation is essential for the inclusion of all the market forces. A proper understanding of the market forces is essential for bringing about changes in the marketing system. It is essential to examine the inadequacies of the organised sector, to strengthen the linkages between production, competitive marketing and the consumer needs.

Objectives

Against the above back drop the objectives of the present study are to:

* Study the organised and unorganised sectors of silk yarn market.
* to analyse the relationship of various market forces in the silk yarn market.
* Examine the yarn preferences of the consumers.
* Understand the consumer perceptions
* Analyse the interstate linkages.

METHODOLOGY

To fulfill the objectives the organised and unorganised sectors of the silk yarn market is examined. The market forces which are considered here are the sellers i.e. the reelers, the consumers (the traders, weavers), the financial

Bangalore Silk Exchange and Karnataka Silk Marketing Board:

The operations of the Bangalore Silk Exchange has been studied to have an understanding of the functioning of the Silk Exchange. The perceptions of the officials, reelers and consumers was collected to analyse its strength and weakness. Karnataka Silk Marketing Board, was studied to assess its role as a price stabilising body.

Reelers

Sixty reelers from Ramanagaram, Kolar, Kollegal were interviewed to know their perceptions about the Silk Exchange, KSMB and the unorganised sector. Of the 60 only 30 transacted silk through the Silk Exchange. Both the participants and non-participants of the Silk Exchange for were included a better understanding of the market situation.

Consumers

The consumers mainly comprised the wholesalers, retail traders and weavers. Forty wholesale traders and fifty retailers (15 in Kanchipuram, 25 in Dharmavaram and 10 in Bangalore) were included in the study to get their views about the silk yarn market. Weavers of different loom strength were considered to get an cross sectional opinion of the consumer. Forty five master weavers from Kanchipuram, 6 from Dharmavaram, 4 each from Kallur and Molkalmuru and 5 from Bangalore were interviewed. Similarly, 255 independent/ private weavers (45 from Kanchipuram, 60 Dharmavaram, 50 each from Molkalmuru, Kallur and Bangalore) were studied. The yarn preferences, sources of silk yarn, mode of transacting business, and

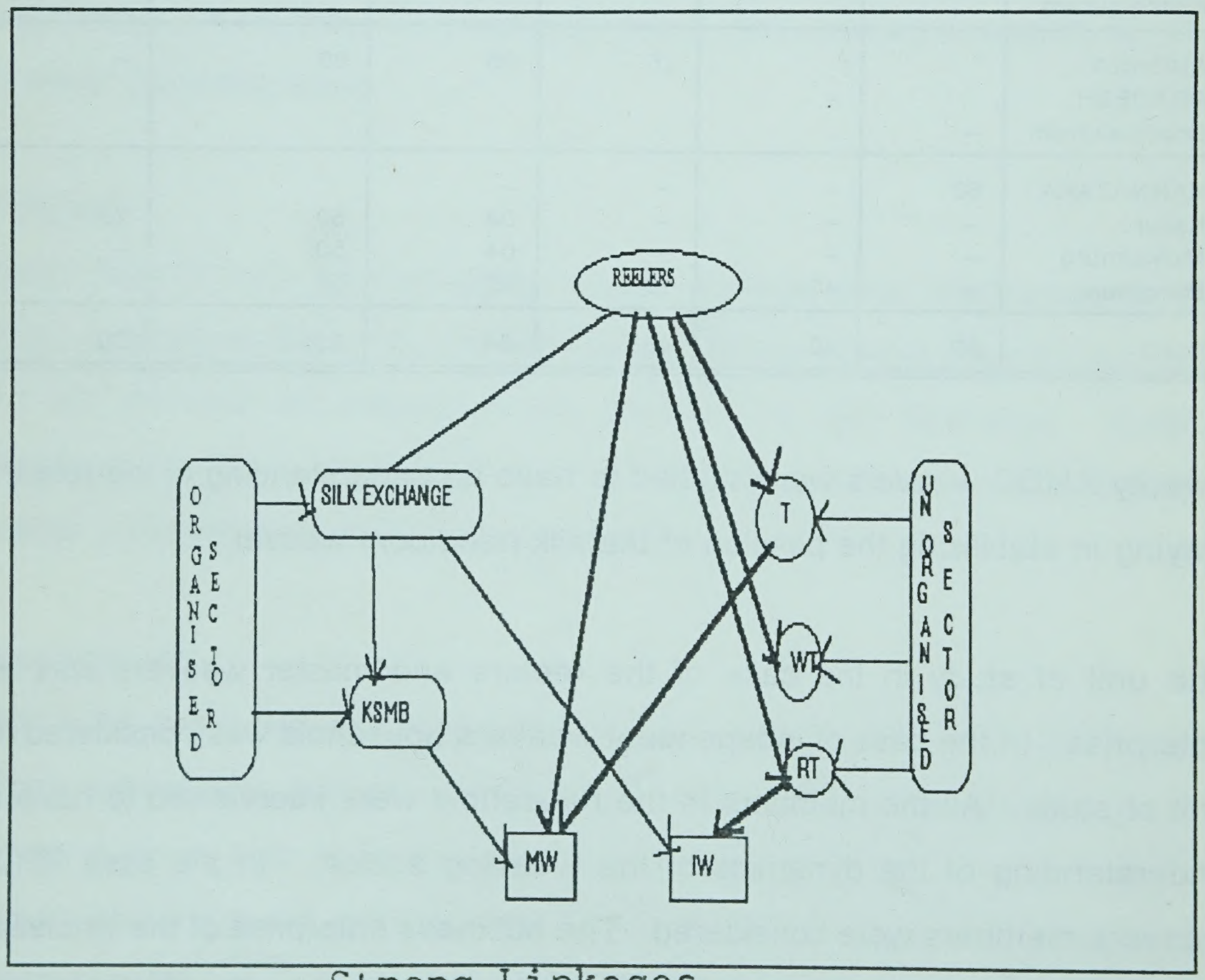
Table 1. Sample studied

Study Area	Reelers	Wholesale Traders	Retailers	Master Weavers	Independent Weavers	KHDC Weavers
TAMIL NADU Kanchipuram	–	–	10	45	45	–
ANDHRA PRADESH Dharmavaram	–	–	25	06	60	–
KARNATAKA Kallur Mulkalmuru Bangalore	60 – – –	– – – 40	– – – 10	– 04 04 05	 50 50 50	 20 – –
Total	60	40	45	64	255	20

Twenty KHDC weavers were studied to have an understanding of the role it is playing in stabilising the position of the silk handloom weaver.

The unit of study in the case of the reelers and master weavers was the enterprise. In the case of independent weavers household was considered the unit of study. All the members in the household were interviewed to have an understanding of the dynamics of the weaving sector. In the case KHDC weavers members were considered. The business enterprise of the wholesale and retail trader was considered as the unit of the study. The trade partners who were willing to respond were also interviewed.

The analysis of the study proceeds along two lines ie., organised sector and unorganised sector. The various linkages in these two sectors is presented in Fig 1.



Strong Linkages

Weak Linkages

(Findings and Suggestions are not included in this Volume because the report is not finalised).